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THE

GARDENER'S MONTHLY

AND

HORTICULTURIST.

DEVOTED TO

HORTICULTURE, ARBORICULTURE AND RURAL AFFAIRS.

EDITED BY

THOMAS MEEHAN,

STATE BOTANIST OF PENNSYLVANIA,

FORMERLY HEAD GARDENER TO CALEB COPE, ESQ., AT SPRINGBROOK, AND AT THE BARTRAM BOTANIC GARDENS, NEAR PHILADELPHIA. GRADUATE OF THE ROYAL BOTANIC GARDENS, KEW (LONDON), ENGLAND. MEMBER OF THE ACADEMY OF NATURAL SCIENCES. AUTHOR OF "AMERICAN HAND-BOOK OF ORNAMENTAL TREES," FLOWERS AND FERNS OF THE U. S., ETC.

VOLUME XXIII, 1881.

PHILADELPHIA,

CHARLES H. MAROT, PUBLISHER,

No. 814 CHESTNUT STREET,

1881.

47.56
Law 2017.3

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Vol. XXIII. JANUARY, 1881. Number 265.

FLOWER GARDEN AND PLEASURE GROUND.

SEASONABLE HINTS.

It is considered one of the reproaches of English gardening that it is limited to few materials. In some specialties they have great variety. In coniferous trees for instance, English people ransack the globe, and give long Latin names to trifling varieties, to swell the importance of every little form. So in Rhododendrons, and those fibrous rooting plants which thrive only in porous soil, and to which they give distinctively the names of "American plants," of which they have many forms under culture. But in deciduous trees, shrubs and hardy border plants, one sees the same dozen or so of things over and over again. It is not quite so bad here in America. Very much more variety appears; but still not near to the degree there might be. In some grounds of extent we often see a hundred trees of one kind, when it would have been just as easy to have had half a dozen kinds, and this is true of shrubs and flowers. Much of this lack of variety in planting, no doubt, comes from ignorance that so much variety can be had. Improvers have not studied for themselves. They have relied on the "agent," who, in most cases, takes but a few things in hand, and which he "rushes." The "agent" or "peddler," must necessarily buy very cheap in order to cover the enormous cost of board bills and traveling expenses, and it is only when things are common enough to be raised in large quantities at a low figure, that the "agent" can take anything in hand. There are hundreds of good things in all the best nurseries which it will not pay to offer through "agents", and those who would have these charming things in great variety, should accustom themselves to personal relations with the nurseries, and to reading the best works. We hope that those who wish to have tasteful grounds, have kept notes the past year of the rarer trees and shrubs noted in our magazine from time to time, and that the forthcoming season of planting, will show increased attention to setting out these pretty things.

CUMMUNICATIONS.

CARDEN SCIONS.

BY CANTAB, BOSTON, MASS.

III.

When I use common goblets as flower-vases, I put a cyme of spiræa, milfoil, elder, or the like, into the mouth of the goblet to fill it up, and into that I stick my bouquet blossoms in any fashion I choose. In this way I can make up a prettier bouquet than I can in a narrow-mouth vase. Sand-filled vases I do not like.

Among Lantanas, L. Sellowiana, a squat and small growing species from Brazil, is the freest blooming kind I know of. Its blossoms are self-colored—lilac—and are borne in the greatest profusion all the year round, outside in the summer time and in the greenhouse in winter.

Why we do not use our wild plants in our gardens

more than we do has often puzzled me. Just now the Indian turnips are brilliantly in fruit; scarlet berries among the bushes are brighter than blossoms.

Calceolaria aureo-floribunda has borne up bravely, and blossomed gayly with us this summer.

The new strain of perennial larkspurs are an excellent acquisition to our gardens; the blossoms are so large, so bright, and when double, so very double, and too they are arranged as densely as those of a hyacinth on the spikes. They are as hardy and as thrifty as the old-fashioned ones.

As an August flowering plant, no garden should be without a clump of the white day lily. It is hardy, thrifty, copious, and will grow in shady places. Its flowers are fragrant and of the purest white.

GARDEN NOTES AND GOSSIP.

BY MRS. R. B. EDSON, MELROSE, MASS.

The readers of the MONTHLY may possibly remember my note in the April number, on a plant bought under the name of Nicotiana suaveolens, and the disappointment and disgust it entailed. I think it no more than an act of simple justice, both to the dealer who sends it out, and to the plant itself, that I give this year's experience as a sort of sequel—and a very pleasing one—to the last. The plant previously described I bought at the greenhouse, and I now conclude it was through the ignorance of the attendant that this plant, whatever it may have been, was sold to me. I resolved not to give up without another trial, and in March last bought a paper of seed, which was sown on the 17th inst., and was up on the 21st. As soon as the second pair of leaves were developed, I knew they were not like the one previously grown. I transplanted them to the open ground early in May, and the 10th day of June they began flowering, and at this writing, Sept. 28, they are loaded with blooms. I am altogether delighted with them. I think them by far the most desirable new annual which has been introduced for years. They are so easily grown, flower so soon and so continuously, and withal are so extremely graceful in growth, and are so pretty, that I can unhesitatingly recommend them to all amateurs. They are of a peculiar pure, waxy-white, averaging an inch and a quarter across, and the long, greenish-white tube adds to their beauty. At night they have a delicate and exquisite jasmine-like fragrance, and being borne on long stems are particularly fitted for bouquet work. They combine finely with roses, lilies, fuchsias and other nice flowers, which so very few annuals do.

I desire, through the MONTHLY, to thank W. L. F., Hanover, Mass., for his kind response to my dismal jeremiad, and for the generous thoughtfulness which prompted the sending of seeds also. I received them May 18th, and sowed them the same day in the open ground. They came up quickly, and began flowering soon after the middle of July. I have a clump of about twenty plants, and I think there are not less than two hundred flowers on them now, and the number I have cut is past all reckoning. So far, I have not seen them advertised by any other seedsmen than Hovey & Co., Boston.

I have grown this year some of the newer varieties of Cannas, those with large flowers, as well as fine foliage. Among those particularly good is Imperator, a tall-growing sort, with very large dark red flowers. Ornement du Grand Roue, foliage edged and tinged with garnet and brilliant scarlet flowers; not quite as large as the former, but more closely set on the spike. Bonnetta excelsa has lovely foliage, veined and shaded with violet, and, in the young leaves, having as decided a "bloom" as the grape; flowers orange-red. Princess de Niece and Gloire de Provence have fine canary-yellow flowers of large size. I have, however, left the best for the last, viz.: Iridifolia. This is a magnificent canna. The foliage is ample—the leaves on mine measuring twenty-seven inches long by fourteen broad. But its great glory is its splendid flowers, which are fully equal in size to the best gladiolus. The color is a lovely shade of carmine crimson, and the petals are so broad that the flower is almost round. One spike has, at this writing, ten of these large, elegant flowers. The plant is not as tall-growing as some, but is the finest in flower I have yet seen. Will not some other of the MONTHLY correspondents give a list of those they have found best in their experience?

In this connection I desire also to suggest that some of the correspondents who have tried the new coleus—Dreer's and Henderson's new sets—report thereon. Are any of them fit for bedding in full sunshine, and are the colors well kept, and do they "look like their pictures?" (See GARDENER'S MONTHLY for March, 1880.) And if any of them are good, what are their names. Also, which is best for inside decoration? Will somebody speak to the question?

Accepting the endorsement of the writer in March number, I sent to Mr. Saul for Acalypha Macaffeana. I received it early in May. It was then about four inches high, and had a very consumptive look. I looked at the description in the catalogue and in the MONTHLY, and then I looked at the plant! I could'nt make them "dove-tail." It did not rally from the shock of removal for nearly a month, but then it went steadily and rapidly to work to redeem itself and its sponsors. It has done both most royally. The foliage is very bright throughout, and the blotches are unique and brilliant. I have now removed it to my window garden, to which it is an odd and altogether charming addition. I saw, at the September exhibition of the Mass. Horticultural Association, a fine specimen of Acalypha mosaica. It is a handsome sort, but not nearly as bright and showy as A. Macaffeana. Before closing this rambling article, I desire to say just a word about that charming rose, "La France." It was one among a dozen bought of Dingee & Conard Co., this spring, and I am just wild over it. I know it is an "old" sort, but I greatly doubt if any of the new ones can surpass it in delicacy of texture and coloring, in size or form and fragrance. I consider it simply perfect. I have picked off many buds, as I know it is a little tender, and I wish it well established for the winter, but it will persist in flowering. Another, as free a flowerer as La France, but of a brilliant velvety-crimson, I had under the name of "Jean Thibaud." I am not sure it is that It is not as dark as that represented in descriptive catalogues. It is, however, a splendid rose, being fully five inches across, perfectly double to the centre, of globular form, and very fragrant, It has flowered all summer, and is also a good grower. The wood is very thorny, and every shoot forms a bud. I wonder if it can be "Jean Thibaud." I had not supposed that so continuous a bloomer. In closing I desire to thank the MONTHLY correspondents who replied to my inquiries concerning Eucharis amazonica. Unfortunately they do not quite agree, but I have concluded, after weighing the testimony, that if a professional florist does not succeed in flowering it in a greenhouse, I should not very likely succeed with house culture.

How very beautiful are the newer sorts of Crotons! Among these at the Mass. Horticultural Society's exhibition, I was particularly pleased with C. variabilis (Falcatus) and C. Queen Victoria. The latter is certainly the most brilliantly colored plant I ever saw The ground color of the leaf is a rich golden yellow mottled with green, and the tinting and shading of magenta and crimson is very beautiful. The first named is also extremely pretty, with its odd shaped leaves and unique coloring.

DESTRUCTION OF TREES IN CITIES.

BY R. C. POPPEY, POUGHKEEPSIE, N. Y.

A year or more ago my attention was attracted to the frequent deaths of trees along our streets and avenues, and since have seen comments on it in our daily papers. These, like the GARDENER'S MONTHLY, are satisfied that gas which escapes from the main pipes is the cause. As reasonable and satisfactory as this might seem to the casual observer, I could not make myself believe it for several reasons, though I fail to be able to say definitely what the cause is. I am nevertheless convinced that it is not the gas. The lamentable account of Arnhem Velperweg, if not exaggerated, is truly a sad one; but in my opinion it is laughable to lay the cause to the dereliction of gas companies, and more so the remedy that they resorted to. The same, it appears to me, as trying to rebuild a house while the old one is still burning. Since all mysteries are explained by theory till facts are reached, I think we have got to satisfy ourselves with theory on this subject for a while. Whenever a tree dies on some thoroughfare, we wonder and ponder at the cause, but if we go through a woods and see as large and as handsome a tree die there, the cause suggests itself,—it simply got sick and now dies, that settles it at once. In my opinion, the gas theory ought to be the last one, until other theories have been tested and found to be wrong. It is the one opinion all over the world, that if one plants a tree it ought to certainly outlive him by at least one hundred years.

I asked the question: What right have we to expect every tree that is planted for some purpose, to reach the age of two hundred or five hundred years? Who has assured us that trees which are planted for shade, are not susceptible to diseases the same as fruit trees, or roses? When young transplanted trees die, experience has taught us that it is mostly owing to careless planting, usually that of too deep. My observation on nature leads me to believe that trees die in the same ratio as animals; and a beautiful maple, or elm, on Fifth ave. is no safer than a shrub in the woods. From my investigation I

conclude that it is a kind of blight, as every tree that died in our city in the last three years, first started by wilting on the top or side branches before going into eternal rest. Now if gas was the direct cause, it would certainly do its work quicker, and not wait until every leaf was developed, and give three or four months grace besides.

Who has traced the current of the gas as it leaks out of the pipes, to say positively that it goes just in the direction of one tree, a distance of fifteen or twenty feet, but spares the two trees on each side of it, which are often not more than six or eight feet away?

A few years ago I read in some German horticultural monthly, that the cause of trees dying in cities, was owing to the gas light, which prevented them from going to sleep, that the continual wakefulness told so severely on the nervous system, that finally death resulted from it. This is good logic too, but like the gas theory, it won't bear investigation.

[Our correspondent is mistaken in taking the GARDENER'S MONTHLY as a type of those papers which are satisfied gas at the roots is the cause of the "frequent deaths of trees along our streets and cities." The GARDENER'S MONTHLY understands very well that trees die from various causes; but that many trees do die from gas at the roots is a fact too well-known to be disputed. We believe gas to be only one of the causes of the frequent deaths.—Ed. G. M.]

GROUPING TREES ON LAWNS.

BY PROF. W. A. BUCKHOUT, STATE COLLEGE, CENTRE CO., PA.

In one of his "Rural Essays," the late Mr. Downing has called attention to the opportunity which we have of grouping and arranging trees upon the lawn with some reference to their autumn coloring. He has remarked upon the great change which comes over a region of literal "scrub oak and pine" when the brightly colored leaves replace the dull green of summer. A recent application from a friend in California to send him "some real autumn leaves, for we have here nothing to compare with those of the East," has called up the matter anew to my mind.

Upon grounds of considerable extent, such as those of public institutions, a very pretty effect can be produced by the difference in color displayed by different trees in the autumn. Where the rich yellow, so commonly assumed by the leaves of many of our deciduous trees, is projected upon the deep green of a well fed lawn or the dark foliage of evergreens, the effect is exceedingly fine, and will call out the admiration of any lover of the beautiful. Where there is a rising background, the variety and intermingling of colors may be very much increased. Our mountain sides would be very hard to excel in this respect, but they show us something of our capabilities in this direction. Who is there who has traveled down the Susquehanna from Williamsport to Harrisburg during the first or second week of October, and has not marveled at the magnificent picture which is then presented? On a somewhat smaller scale we can reproduce upon our grounds some of the bright spots in this picture.

One great difficulty, however, consists in the fact that many of our brightest and most desirable trees retain their leaves but a very short time after they have changed. The purple of the ash is one of the earliest heralds of the change in season, and the color is unique; but the leaves drop and the tree is left quite bare long before many other trees have taken the first hint of the approaching winter. The white maple when growing vigorously, often shows the most beautiful lemon-yellow, but a very few days suffice for its display. It disappears as quickly as it came. The sugar maple is considerably better, for it holds its leaves much longer, and, moreover, they often assume a bright scarlet, which makes the tree one of the brightest ornaments of our autumn days. We have a few trees which hold their leaves so persistently, and change so gradually, that the period of conspicuous display is prolonged late enough to suggest that these qualities should make them of increased value in ornamental planting. Of such trees I would name the red oaks, which color slowly, but finally take a deep red, which is very effective in contrast with green. As seen naturally, they are very often intermingled with the pitch and white pines, and this suggests that they might be used in planting much more abundantly and effectively than is ordinarily done.

Each year I become more and more in love with the Norway maples for large grounds. Individual trees vary a good deal in their behavior and in the color assumed (a fact more or less true and noticeable in all trees), but the general course with them is to hold the deep green of their leaves pretty late; then comes the faint

tinting of the tips of the twigs, which spreads more and more until the tree looks like a mountain top glistening in the sunshine, while everything about its base lies in shadow; more and more the gold encroaches on the green, and at length a golden ball it stands out a marked object in any company. With favorable weather (which we are apt to have at about this time), it may hold its leaves in this condition for two weeks or more. When the heavy frosts come, we find the leaves dropping rapidly as the cool morning air is heated by the ascending sun, and should a strong wind come, they are caught up and scattered in long, streaming lines over the turf, forming a very pretty picture to the looker-on from a little distance. Thus the beauty of its autumn foliage amply atones for a certain stiffness of outline and habit, and the globular figure which this maple is so apt to assume.

I believe this feature in ornamental planting worthy of more attention, especially in those places where from the size of the grounds, the relation of surrounding highland or natural growth, and the variation of the surface, large numbers of trees are required, and considerable variety is needed.

DIANTHUS HEDDEWIGII.

BY T. S. PRICE, KINGSBURG, CAL.

This is one of the most beautiful of all the perennials. Of this species there are several varieties, of which H. diadematus and H. laciniatus are the most important; these are the results of hybridization. H diadematus is a very prolific bearer of flowers, many times having from thirty to forty flowers upon it at a time; these flowers usually about three inches in diameter, are very rich in color, varying from white to a very dark maroon. H. laciniatus is also a prolific bearer, and occasionally reaches two feet in height; this flower, like the diadematus, varies from very light to very dark. The plants are very beautiful, and merit a place in every flower-garden; they may with a little extra care, be used as a house plant. Seeds should be sown in spring under glass, and let remain till large enough for transplanting. They should be planted in rows from six inches to one foot apart, owing to size. There need be but little loss in transplanting, as they are vigorous and readily accommodate themselves to their new position. Both the above species flower during the whole summer.

ORNAMENTING OUR HOMES.

BY JAMES M. HAYES, DOVER, N. H.

There has been a marked improvement in our country homes within the past few years, although there is still abundant room for more. A few years ago no such thing as a flower garden was to be seen on the farms of New England, now they are to be met upon more than one-half the farms, although there are still those that are so penurious that they think that time spent by the farmer's wife or daughter in making and weeding a flower garden, is time thrown away. I have in my mind a farmer's wife who is fond of her flower garden and will work out of season to make it succeed. I know another lady who thinks all such work thrown away, and that it would be much better to have the same garden planted with some vegetable that would yield an income. In fact she believes that every thing should go to increase the bank stock.

Our New England poet Whittier speaks of this class of farmers as they were two generations ago in his prelude to the poem, "Among the Hills," after speaking of their rooms and grounds bare of adornment, he gives them the following sarcastic hit, which is an apt description of the "close fisted" Yankee farmer of half a century ago. "Saving his soul and winter pork with the least possible outlay of salt and sanctity."

But a change has come over the people since then. The diffusion of knowledge by means of the agricultural newspaper, and such horticultural works as the GARDENER'S MONTHLY, has been felt; and to day you will find some of as good horticulturists amongst the farmers as anywhere. And they have only to work on and imitate the example set by such workers as Hovey and the venerable Col. Wilder, and our New England hillsides will be the pride of the whole country.

EDITORIAL NOTES.

LILY CULTURE.—It is now believed that the disease of the lily and gladiolus, by which they lose their leaves before they are mature, arises from the hot soil in which they are grown. There is but little doubt that if the soil be well mulched, lily growing would be more of a success.

VARIEGATED CORCHORUS.—Variegated plants have generally a diseased look, and are not favorites in American gardens; but some bushes of the Kerria japonica variegata, that we saw

last summer, impressed us very favorably with its value in ornamental gardening.

EVERGREENS IN MISSOURI.—During a recent journey through northeastern Missouri, the writer noted some interesting experiments on the grounds of the University at Columbia, Mo., under Prof. Hussman's care, in regard to evergreens, and indeed other trees, the result being that trees with numerous surface fibres, such as hemlock spruce and Norway maple, did not succeed nearly as well as those species which were deep rooting. Of course this fact will require more care in transplanting, as trees with a few long sprawly roots never move as easily as those with an abundance of fibres. The deep rooting trees seem better able to stand the heats and droughts of summer, and the excessive evaporation from high wintry winds than the others.

PUBLIC PARK AT LYNCHBURG.—The citizens of this beautiful Virginia city are moving in the matter of a public park.

PAMPAS GRASS FLOWERING.—While passing through St. Louis recently, and visiting the Missouri Botanic Garden of Mr. Henry Shaw, the writer was much interested in some Pampas Grass pointed out by Mr. Gerney, the gardener. A quantity had been kept during the winter of 1879–80 rather warm, while the others had been in complete rest. The well rested ones flowered freely the past summer, while the others flowered but little. Such facts as these are of great value.

PAINTED CUPS.—The London *Florist and Pomologist*, for November, has a beautiful colored plate of Castilleja indivisa, one of the "Painted Cups" of the Western States. Though partially a root parasite, they have discovered in England how to grow it.

MISTLETOE IN NURSERIES.—Mr. Richard Smith, of Worcester, England, propagates the mistletoe so easily on apple trees, that they are furnished as abundantly from his nurseries as Kilmarnock Willows from others. They are said to be in good demand.

NEW AND RARE PLANTS.

THE YELLOW CLEMATIS.—The *American Agriculturist* says this belongs to the flamula group, and says its flowers—something remarkable among these plants—are yellow. The plant is rather slender and delicate, having less robust stems, than the other climbers. The foliage, of a fresh and pleasing green, is more finely cut than in the other species, each leaf consisting of three to five sharp-pointed leaflets which are themselves cut or lobed. The flowers are solitary, of only four spreading sepals, and are about 1½ in. across; their color is a pale lemon-yellow. This plant, coming from the higher mountains of Chinese Tartary, is a comparatively recent introduction. As may be inferred from its origin, it has proved perfectly hardy in the severe climate of New England, and this, together with its delicate habit, its very free growth, and the unusual color of its abundant flowers, will make it very popular when it becomes better known. It blooms in late summer, and its flowers are soon succeeded by globular clusters of fruits, the long feathery tails to which are of a very pale green, and about as showy as the flowers. It is Clematis gravedens botanically.

CARPENTERIA CALIFORNICA.—Mr. John Saul has sent to the *Garden* specimens of this plant, which says of it: "It is an extremely rare plant, even in its native habitat; so rare, indeed, that Dr. Asa Gray had not seen flowers of it when he prepared the 'Botany of California,' nor do flowers of it exist in the Kew Herbarium. As may be seen by the annexed engraving, drawn natural size, it is a handsome shrub, the flowers being pure white with yellow-tipped stamens. The leaves are broadly lance shaped of thick texture with recurved margins; they are pale green on the upper surfaces, very glaucous or almost white underneath. Mr. Saul remarks that it grows from six to fifteen feet in height and is very bushy. It grows in dry canons near springs in the Sierra Nevada, probably on the head waters of the San Joaquin. Botanists consider its affinity to be with the Mock Orange (Philadelphus), but, with the exception of a slight similarity in the form and color of the flowers, it is very different from any cultivated Mock Orange from a garden standpoint."

SCRAPS AND QUERIES.

STERCULIA PLATANIFOLIA.—H. S., Raleigh, N. C., sends with a specimen of this, the following: "Enclosed I send you a leaf and a seed from a tree of which I have seen a few growing in this place. The tree grows to a moderately good size,

and has a smooth silvery bark. I would like to ascertain the name of it, and would kindly request you through the GARDENER'S MONTHLY to tell me what it is, if you know it."

DESTROYING THE ROOTS OF THE PAPER MULBERRY.—Noah Barlow, Natchez, Miss., writes to Prof. Riley, who hands us the query: "Having tried in vain to kill the roots of the Paper mulberry, I take the liberty of writing to you, in the hope that you will be able to tell what will kill the roots, or will stop them from coming up all over my yard. I have killed the trees, but this does not stop the roots from growing. I hope that you can give me a remedy."

[Pulling up each sprout as it appears, before it has many leaves, will utterly stop the nuisance. It may have to be done two or three times in the season. Possibly one or two may come the second season, but there will not be many.—Ed. G. M.]

GREENHOUSE AND HOUSE GARDENING.

SEASONABLE HINTS.

Window plants suffer much at this season from the high and dry temperature at which it is necessary for human comfort to keep our dwellings. Air can seldom be admitted from the lowness of the external temperature. Saucers of water under the plants do much to remedy the aridity under which room plants suffer. In such cases, however, so much water must not be given to plants as to those without saucers. The water is drawn up into the soil by attraction; and though the surface will appear dry, they will be wet enough just beneath.

The more freely a plant is growing, the more water it will require; and the more it grows, the more sun and light will it need. In all cases, those which seem to grow the fastest should be placed nearest the light. The best aspect for room plants is the south-east. They seem like animals in their affection for the morning sun. The first morning ray is worth a dozen in the evening. Should any of our fair readers find her plants, by some unlucky calculation, frozen in the morning, do not remove them at once to a warm place, but dip them in cold water, and set them in a dark spot, where they will barely escape freezing. Sunlight will only help the frost's destructive powers.

It is not exactly the season for re-potting generally; but anything that is about to grow, and seems cramped for room may have a shift. This is the rule in plant-growing; for if we re-pot when the roots are inactive, the water is not drawn as rapidly from the soil as it should be, and then it sours, and injures the roots.

The best kind of earth to use is the surface soil, containing the spongy mass of surface roots, from a wood; the first two inches of an old pasture field, the turfy, spongy mass called peat, from sandy bogs or swamps; a little well decayed hot bed manure; some sharp sand; are now about the only "elements" that the most skillful gardener cares to have beside him; and many a good gardener has to find himself minus some of these, and be satisfied.

The soil for potting should be used rather dry; that is, it should be in such a condition that it will rather crumble when pressed, than adhere closer together. Large pots—those over four inches,—should have a drainage. This is made by breaking up broken pots to the size of beans, putting them in the bottom a quarter or half an inch deep, and putting about an eighth of an inch of old moss, or any similar rough material, over the mass of "crocks" to keep out the earth from amongst it. Little benefit arises from draining pots below four inch, the moisture filtering through the porous pots quite fast enough; and the few pieces of "drainage" often thrown in with the soil placed right over, is of little or no use.

It will still be severely cold in many districts where our magazine circulates; though in the "sunny South" the roses are almost in bloom. For the benefit of these belated ones we may remark that it is better to keep in heat in cold weather by covering, where possible, than to allow

it to escape, calculating to make it good by fire-heat, which is, at best, but a necessary evil. Where bloom is in demand, nothing less than 55° will accomplish the object; though much above that is not desirable, except for tropical hot-house plants. Where these plants are obliged to be wintered in a common greenhouse, they should be kept rather dry, and not be encouraged much to grow, or they may rot away.

COMMUNICATIONS.

FRAGMENTARY RECOLLECTIONS OF DRAGON TREES.

BY WILLIAM T. HARDING, "OAK HILL" CEMETERY, UPPER SANDUSKY, OHIO.

The fine specimen of that rare old plant, Dracæna fragrans, of which the editor gave a pen picture in a late "Monthly," would do one good to see. That it is both rare and old, cannot be denied. Since its advent in England, in the year 1768, it has grown old in the service of ornamentation; but, is no less beautiful now than it was in other days. It is much to be regretted it has become so rare, and seldom seen. Whether its graceful and comely form has been overlooked among the crowds of modern beauties, which fascinate with their newer charms, I hardly know. Yet it seems improbable I should have failed to see and recognize such an old acquaintance, if it had been where it ought to be. So I am led to consider it is a stranger among its more showy, though less odoriferous compeers. Even if out of sight, when in flower, its odor is so sweet and seductive, as "to lead by the nose," and softly decoy willing captives to inhale the sweet breath of its blooms. So exquisitely delicious is its rich aroma, as to vie with the sweet olive, the violet, or rose. The last one I remember having seen was at Mr. Buist's, in Philadelphia, several years since.

As I confess to being a lover of Dracænas, the old attachment seems to carry me back to Sydney, New South Wales, the land of sunshine and flowers, where many years ago I saw them in all their glory.

From the Government domain to the noted Botanic Garden of Sydney, is a very pleasant stroll, beneath the big gum trees, araucarias and palms. And few there are who having any love for nature, or "the art of man," who will omit the opportunity to wander among and enjoy. To the writer, the æsthetic associations of the vegetable kingdom are always pleasing. And while at the antipodes, he duly enjoyed the privilege of inspecting the vast botanical collection, which the intelligent government of that remote and remarkable land so well and wisely cared for.

While thus engaged, my attention was drawn to the noble monumental obelisk—sacred to the memory of the unfortunate Mr. Allan Cunningham, so properly placed among the trees, shrubs and flowers, he suffered and died for. Alas! poor fellow, his fate was a sad one. While pursuing his researches in the interest of science, as botanical attaché to Sir Thomas Mitchell's exploring expedition in 1835, he was cruelly murdered by the treacherous savages, on the bank of the Bogan river. The singular conifera Cunninghamii lanceolata, named in honor of the martyr, was fittingly planted near by.

Among the many curious, useful and beautiful plants he first presented to an appreciative public, I will mention but three, and which all good gardeners ought to know, namely: Araucaria Cunninghamii, Fagus Cunninghamii, and Stenocarpus Cunninghamii. In good taste, these peculiar trees, with others he discovered, had been planted by loving hands, adjacent to the *memento mori* of the noble man.

But, O ye gods! what are the odors which ascend from the altar of Flora, and float around the silent monolith in the garden? Celestial zephyrs pervade the atmosphere, and the ethereal balm savored strongly of flowers. Following my olfactory guidance, but a few steps from where I stood, I discovered the floral laboratory, which distilled the delicate and subtile perfume. A large clump of Dracæna fragrans told the tale of the odorous grove.

Dracænas are all elegant hot-house plants, easily cultivated. They thrive best in good, rich loam, with a little sand and decayed cow-dung added. Occasional applications of manure water decidedly improves them. Of some varieties, the leaf markings are truly magnificent; while all are in some degree beautiful.

The curious old Dragon tree, Dracæna Draco, which was grown in England as far back as 1640, and which used to be one of the *curios* of the conservatory, has almost ceased to be seen now-a-days. It makes a good match to mate with agaves, and such like things, to grow in vases, for hall decoration during the winter, and lawn or terrace ornamentation in the summer.

At Cape Town Botanical Gardens, South Africa, I saw it, with other kinds, growing from

thirty to forty feet high. From it, D. Draco, the commercial drug known as gum dragon, is prepared; while the roots of D. terminalis are said to possess medicinal properties.

In the island of Teneriffe is a huge and grotesque specimen, supposed to be the oldest tree in the world. This wonderful tree is described by travelers as a vegetative monstrosity, whose existence counts some thousands of years.

Taking them all together, they are plants of noble mien, of gorgeous garb, and stately port, and ought to be found in all choice collections where grand and goodly plants are grown.

ORCHIDS.

BY W. G., CINCINNATI, OHIO.

There is now at this date, November 24th, a splendid variety of the scarce Orchid, Oncidium Krammerii, in flower in the new and rare plant houses of the Cincinnati Floral Company's establishment, College Hill, Ohio, which is worth a long journey to see. It resembles a large butterfly, with its wings expanded, resting upon the end of a flower spike, about twenty-four inches long. It is of a dark yellow color, beautifully blotched with brown. The plant is growing in a pot, with rough peat and sphagnum, with plenty of water in its growing season. There is also a fine specimen growing upon a block of wood suspended from the roof, in most robust health. There is also a very fine plant of Cypripedium Harrisianum in flower; also Oncidium pulvinatum, with its long spikes of beautiful yellow color flowers, quite a charm at this dull season of the year. Also in fine condition good plants of the beautiful Dendrobium Wardianum and Odontoglossum vexillarium; O. cirrhosum, with flower spikes; Oncidium incurvum, just coming into flower; Lelia anceps, flower spikes quite three feet long; also grand plants of the scarce and beautiful Cattleya Mendelii, Cymbidium eburneum, Dendrobium bigibbum. This is a dwarf-growing plant, producing racemes of rosy purple flowers, and will continue to throw out spikes from the same stem for several successive years, and requires plenty of water in its growing season. I must mention a very fine plant, and one that should be in every collection, and that is Oncidium macranthum. It is growing suspended from the roof, and one of the most handsome of the Oncidiums.

There is also in fine condition Cattleya Mossiæ, C. Trianæ, C. Leopoldi, C. guttata, Chysis bractescens, the beautiful Disa grandiflora, Saccolabium Blumei, Oncidium Weltoni. Growing in the same house is a very fine specimen of Nepenthes Dominiana, quite five feet high, full of its beautiful pitchers; also N. Hookeriana, N. Rafflesiana, N. rubra, N. Sedeni, N. Chelsoni, N. intermedia. These plants are growing in baskets suspended from the roof. The Cincinnati Floral Company finds these plants require a liberal supply of water all the year round. This establishment is also noted for its fine collection of new plants, in which stands the new Sarracenia crispata and Sarracenia flava ornata, both handsome plants, of the striking form of the side saddle flower. Philodendron Carderi, quite new; also Dieffenbachia Leopoldii, D. splendens, with a host of new Crotons, and other plants. This enterprising Company is making great additions in all these plant departments for the coming year.

PETER HENDERSON CARNATION.

BY NANZ & NEUNER, LOUISVILLE, KY.

In reply to the article published in your last number about "P. H." Carnation, would say that if the flower of the carnation, "P. H." is cut at the proper time and handled correctly afterwards, it will keep five days and longer in a salable condition. We maintain every point we mentioned in our circular issued two years ago. For trial, &c., we expressed flowers to New York; had the same box with contents expressed back to us, the flowers being on the road five days, and still they looked well, and could be used.

We further claim that this carnation does even better in Eastern States and brings a heavier crop than here, owing to difference in climate. This is our experience.

THE OX-EYE DAISY.

BY O. J. POPPEY, POUGHKEEPSIE, N. Y.

In one of the back numbers of the MONTHLY a timely warning was published against Convolvulus arvensis. It may not be amiss to extend this warning to the Ox-eye daisy, as it is no less a pernicious weed than the Convolvulus arvensis. Besides, it is now destined to rapidly become a general object over our fields and meadows throughout the country, on account of its flowers being introduced in the floral trade. I noticed that some of our New York seedsmen have

upon their seed papers the name "Ox-eye Daisy," meaning the French daisy—a different plant altogether; this undoubtedly leads many people to the belief that it really means the common wild ox-eye daisy; the seed of which is also very fine, and can be easily sent in a letter to a friend, and in this way facilitate the speedy distribution of this troublesome weed to the remotest part of this country, to the detriment of every farmer. In this section all farmers find it almost impossible to combat with, to prevent it from taking entire possession of their timothy fields and meadows, of which many illustrations can be seen here.

The Ox-eye daisy is a perennial of low growth, beginning to bloom in the latter part of May, and continues until autumn. Its erect flower-stems attain a height of eighteen inches to two feet, and each bears a large and showy flower, with a yellow disk, and pure white rays. It cannot fail to appeal to sympathy and be spared for a time, wherever it may make its first appearance, and that its appeal is strong can be judged from the fact that thousands of blossoms in one season are disposed of by florists of New York city. Were it not for its abominable aggressiveness upon cultivated plants it would deserve a place in every flower garden

According to Linnæus its botanical name is Chrysanthemum Leucanthemum. But some botanists have divided the genus and this is now Leucanthemum. Like all our worst weeds, it too came from Europe. The seeds mature and germinate in one season, and the plantlets attain sufficient size before winter sets in, to enable them to bloom and produce seeds the following season. That there is reason to apprehend that this weed may become wide-spread now, more so than ever before, I will mention this instance: A florist in the neighborhood of New York city tried to force it, and knowing it only by the name "daisy," he imagined that it was the same thing he saw in Paris grown as standards; laboring under this impression, he procured several hundred plants from meadows and roadsides in the early part of the summer, and planted them in the green-house among his Jacqueminot roses. During the winter the ox eye daisy made very little growth; but about two weeks before they began to bloom outside, three flowers were fit to cut; after that they were plentiful, and far superior on the fields to those in his greenhouse. Besides, they soon began to crowd the roses, and therefore had to be taken up by the roots. The extraordinary growth they made in so short a time was astonishing; the roses, however, did not suffer any, as the crop was unusually large and of superior quality. [Served him right. Two or three dollars a year to his neighbor, the *Agriculturist*, the *Rural New Yorker*, or even the GARDENER'S MONTHLY, would have saved him all this loss. But he is no doubt yet "down on book larnin."—ED.] The "daisy," as a forcer, proved a failure, but not as an addition to the list of vexatious weeds of the garden, as they were transferred from the green-house to the open ground, with the expectation of deriving some benefit from them there. From this experience the florist became conscious of his mistake in regard to the variety. There can scarcely be any doubt as to the possibility that under similar circumstances this weed was carried into parts of the country where it heretofore was unknown; and it may be to the interest of every gardener, and especially the farmer, to be aware of this coming evil.

It is to be hoped that the good qualities of the French daisy will be appreciated and win the love of every admirer of floriculture, so as to discard forever this obnoxious weed, the ox-eye daisy, to which may be attributed the cause of many farms becoming almost unfit for cultivation, and innumerable tons of hay annually made by it unmarketable in this section, where in summer the fields represent oceans of ox-eye daisy flowers. It seems as though they could never be gotten rid of when once established; a fact serious enough to contemplate by all cultivators, as to the advisability of resorting to some means that will check its invasion upon new territories.

So long as agricultural products continue to flow eastward, there will be little or no danger of its immigrating westward through this source, but since it is becoming a department of floriculture, any encouragement towards cultivating it may have a serious termination not at present suspected.

[The French, or Paris daisy is Chrysanthemum frutescens, and it may be that C. foeniculaceum is either the same or a closely-allied species,—for we have not the material at hand to decide. Under the latter name a pretty shrubby species is now becoming common in American gardens. Its glaucous green foliage renders it valuable in mosaic gardening, when kept sheared back, so as to prevent flowering.—Ed. G. M.]

EDITORIAL NOTES.

COOL HOUSES.—We believe cool houses—houses in which plants are merely to rest during the winter for summer use—will come into great favor. In a recent visit to Tower Grove Park, St. Louis, we were pleased to find the cool house, erected a few years ago, a great success. The house is a parallelogram, built of brick, the walls hollow, with a few narrow windows along the walls. The roof is partially opaque. The aim is to keep the temperature about 45°, so that they shall rest and not grow; although in this restricted light, some autumn blooming plants, were charmingly in flower. A large specimen of Malvaviscus mollis was especially gorgeous. Mr. Shaw, the controller of the Park, feels proud, as he has good reason to be, of the great success of the house. The cost of fuel for such structures, as well as the care required is very little indeed.

PALMS.—As a general thing, palms are overpotted. If the soil get sour the roots rot, and the leaves get yellow. They do better in comparatively small pots than any other plant.

FLORICULTURE IN LOUISVILLE.—The *Courier Journal* has recently been giving a history of gardening about Louisville. The first professional florist was Edward Wilson. He came there in 1836, and retired in 1860 to Geo. Walker. He has now nine greenhouses and seven acres of ground. Frank Litchfield commenced in 1865. He has five greenhouses. Henry Nanz is the oldest living florist. His first greenhouse was built in 1850. In 1874 he went into partnership with Mr. Neuner. They have twenty-eight greenhouses and thirty acres. Francis Morat began in 1856. He has twelve greenhouses. In 1865, Ross & Remper started, who were soon bought out by Anton Lauer. He has eleven greenhouses and fifteen acres. B. F. Rudy thirty years ago was an amateur, but sold out his establishment. Recently he has started as a florist, and has now three houses. Charles Rompa began again in 1872. He has six houses. In 1877, Jacob Schultz commenced. He has now four greenhouses. Mary A. Schwarz is one of the oldest flower growers, and has four greenhouses. The House of Refuge has a commercial greenhouse, worked by the inmates. Thirteen small firms are named which have one or more greenhouses. Outside the city limits are numerous scattering firms. Those named are George Thompson, 1873, fifteen greenhouses, and W. Allen Richardson, 1877, but now with fourteen houses. Mr. Richardson was the first to build a house for roses exclusively, in Louisville.

CHRYSANTHEMUMS AND ROSES.—At the November meeting of the New York Horticultural Society, Tea roses and Chrysanthemums were the chief articles in competition.

THE VALUE OF ORCHIDS.—Orchids are so difficult to propagate extensively that large plants bring good prices. At a recent sale by auction of a good private collection in England over $10,000 were realized. The plants brought from $100 to $300 each.

KILLING INSECTS BY COAL OIL.—A correspondent of the *Gardeners' Record* says: "Take four gallons of warm water, dissolve in it one ounce of soft soap, add a wineglassful of paraffin, thoroughly mix by drawing the syringe full and discharging it with force into the vessel, and to keep it well mixed while using, discharge two syringefuls into the vessel, fill again as quickly as possible and discharge on the plant; paraffin varies in strength, so if this does not prove effectual try it stronger. I have not found a quarter of a pint to four gallons of water hurt roses." It should be remarked that undiluted oil will injure plants as well as destroy insects, and therefore the directions to "draw the syringe and discharge again" in the barrel, so as to well mix, is important, otherwise the oil will swim to the surface, and the syringe will draw in too much oil and too little water.

NEW AND RARE PLANTS.

TUBEROUS ROOTED BEGONIAS.—There have few more rapid advances in floral progress than in the improvement of tuberous rooted Begonias, since the B. Bolivensis was introduced but a few years ago. Among those who have been among the foremost in the work of improvement are Messrs. James Veitch & Sons, Chelsea, England. When the writer was in England a few summers ago, some beautiful hybrids were just blooming, among which was the variety of which we now give an illustration. Messrs. Veitch thus describes it:

"Mrs. Charles Scorer is a splendid variety of our own raising, with large well formed flowers of a brilliant glowing crimson scarlet, unequalled

in this shade of color by any begonia of its class in cultivation.

"The plant is of robust habit, free flowering, and furnished with a neat dark green foliage, which, together with its brilliant flowers, render it one of the best Begonias for exhibition purposes yet offered."

These tuberous rooted Begonias have not yet had a full trial as open air plants in our country. They need a good summer heat to do well, but not extremely high. Those the writer saw in England, at Messrs. Veitch's were flowering there in the open ground in front of a greenhouse. In our country the air will perhaps, be too dry; but if they were grown in partial shade we think they would succeed admirably.

BEGONIA MRS. CHARLES SCORER.

SCRAPS AND QUERIES.

MEALY BUG.—Mr. J. D. S., Upper Sandusky, Ohio, asks: "Is there any way to keep down mealy bug in my greenhouse? My gardener is at his wit's end."

[Usually they are kept down by continuous sponging. Diluted turpentine or coal oil has been used, but this requires judgment or the plants will be injured.—Ed. G. M.]

BEAUCARNEAS.—S. W. M, Louella, Pa, writes: "In a greenhouse at Downingtown, I saw a few days ago among some other bulbs, a plant marked Beaucarnea rosea and another Beaucarnea robusta. I have searched all the catalogues and botanies in my possession but cannot find any such plant. Neither Mr. Dreer nor any of the florists I deal with have ever heard of it. Can you enlighten me on the subject. It may be a misspelled word, so far from the original spelling as to completely disguise the sound."

[Beaucarnea is a modern name given to some plants allied to the Agaves, and which have been taken from an old genus called Freycinetia, or (improperly written) Pincenectitia. This is the account given in the "Treasury of Botany." The name does not appear in Lindley's list of genera, nor any work before his time, though we think it must have been in use a much longer time, for the writer has been familiar with Beaucarneas from boyhood.—Ed. G. M.]

GREENHOUSE ROSE CULTURE.—Mrs. J. D. S, Upper Sandusky, Ohio, asks the following questions:

"Will you or some contributor be good enough to give through your valuable MONTHLY some directions how to trim and what season of the year it is best for winter bloom, for Mareschal Niel and La Marque Roses under glass? Mine are buried in a pit, on the south side of my greenhouse, and brought through an opening made by taking out a side sash between the two. They now cover a good part of the roof of the south side of my 16 by 30 feet greenhouse, and have never yet been trimmed. They are four years old, and have not bloomed much since taken from the pots, two years ago. I see some of your correspondents think these roses bloom better budded on Manetti stocks. If so, I have lost much valuable time with mine, and will have to begin again."

[These strong-growing Noisettes do not bear much trimming. They do not flower freely till the rank growth is exhausted. Pruning makes rank growth. It is best to thin out only some of the superabundant growth. This is done by those who grow for market, about August or September.

[It was a correspondent from England who recommended Mannetti. In our country it suckers so badly, that it has been discarded. One would hardly know where to buy a Mannetti in America.—Ed. G. M.]

GAS TAR ON HOT WATER PIPES.—A Waverly (Md.) correspondent writes: "A young florist, a friend of mine, put up a range of houses last summer, heated by hot water. On the recommendation of some ignoramus he painted the pipes with gas tar, with the usual and inevitable result. He has painted them twice over the tar with boiled oil and lampblack; but that is useless, of course, seeing the heat must pass from within outward, and bring the fumes of the tar with it. I recommend as the only remedy to take down the pipes and burn it off."

[It could, perhaps, be burned off by torches or charcoal pans without taking all apart.—Ed. G. M.]

YELLOW BOUVARDIA.—If any of our correspondents can answer the following, we shall be glad to publish the information:

"As a subscriber to your much-valued MONTHLY, I take the liberty of asking the following: "Are the yellow varieties of Bouvardia, viz., flava and strigillosa, ever cultivated in this country, and if so, where can they be procured? Any information on the subject will be thankfully received by A. W. S., P. O. Box 5810, Boston, Mass.

RAISING NEW VARIETIES.—It is a wonder more amateurs do not interest themselves in raising new varieties of flowers. It gives as much pleasure as any branch of gardening. A Clinton, New York, correspondent writes enthusiastically of his work in this line:

"I have found a very finely variegated-leaved silver poplar. Hope to propagate it. Have on hand some 300 seedling geraniums from finest doubles to singles. Many have blossomed, and are promising to make a valuable lot."

It is so easy a matter to take the pollen from one kind to the pistil of another kind, and the result new varieties, with possibly one that may make the raiser famous, that it is worth all the labor to try.

FRUIT AND VEGETABLE GARDENING.

SEASONABLE HINTS.

One of the troubles of a beginner in fruit growing is to decide on what varieties to plant. It is just here that no writer of seasonable hints can help him. Varieties which do well in one place will not in another, so that the best kinds are matters of actual experience. It is wise to consult with some fruit grower in the vicinity who has already had experience. But, of course, this will not hold good as to new kinds which few have tried. Somebody has to begin. It is perhaps better to let those make the trial who have already had some experience. They have an instinctive idea as to what "may do," and hence rarely make serious mistakes. But after all there has been this knowledge gained of late years, that fruits are not near as local in their preferences as they were once supposed to be. That they are tender, or do not do well in some places, often arises more from diseased or weakened plants being used than from constitutional incompetence. It was in this way it once came to be believed that only two or three varieties of grapes could be grown in the United States. "Plant only the Concord" came to be an universal cry. Now we know that the steam hatched plants in some established houses which had an immense grape trade, scattered plants with Phylloxera on the roots over the whole country. It was this minute insect, and not the "tender kind," which rendered the grape diseased. Now since grape vines are grown from the start in the open air, and the little pest has not the chance to get everywhere distributed, almost any native kind can be fairly grown. It is the same with the raspberry, strawberry and blackberry. It is minute insects or small parasitic plants which weaken their growth, and these are carried from place to place until finally the whole variety is pronounced "tender" or "worthless;" and it is this fact which gives a necessity for raising new varieties, as it takes some time for these little foes to get on roots, which start clear of them as a seedling does. It is strange how a disease sticks to a variety after it once gets hold. Let a strawberry bed once have spotted leaves, and it is not safe to take runners from those beds. If the same kinds are desired, better get them from some one who can warrant them free from spot. If this cannot be done, it is time to raise a new kind from seed.

In getting ready for spring vegetables do not fear to pile on the manure. It is the rank rich growth which gives the agreeable tenderness to them, and without an abundance of manure this cannot be done. Deep soil is also a great element of success. Though we do not favor subsoiling and underdraining for fruit trees, we regard it as very profitable in vegetable growing.

Asparagus beds may have the soil raked off them a little, if it was thrown up from the alleyway in the fall. It allows the sun to get to the roots earlier, and the crop is forwarded thereby. If the beds are poor, they may have a dressing of guano, or superphosphate, which has been found very beneficial to this crop. It has become almost a stereotyped recommendation to have "salt applied," but there is a good deal of the humbug about it. In dry, sandy soils it does a little good, and a little in whatever manure is applied is acceptable to them, but more has been made of the salt theory with Asparagus than it deserves. Asparagus beds may be got ready as soon as the ground is sufficiently dry to admit of working. A deep soil is all-important; two feet, at least, and a situation should be chosen that is warm, and yet not too dry. The roots should be set about four inches under the surface, twenty inches or two feet from each other, and the rows eighteen or twenty inches apart. Large, fine Asparagus cannot be obtained by crowding the plants; strong two and three year old plants are the best; although in good, rich soil, one year old plants will often bear a good crop the year after planting. The length of time Asparagus requires to come into bearing depends much on the soil. It is useless to attempt raising it in poor ground.

This is generally supposed to be the pruning season. Orchard trees generally get too much pruning. In young trees only thin out so as not to have the main leaders crossing or interfering with one another. Or when a few shoots grow much stronger than the rest, cut these away. Insist on all the branches in young trees growing

only on a perfect equality. On older trees which have been in bearing a number of years, it will often benefit to cut away a large portion of the bearing limbs. By a long series of bearings, branches will often get bark bound and stunted, preventing the free passage of the sap to the leaves. In such cases the sap seems to revenge itself by forcing out vigorous young shoots a long way down from the top of the tree. It is down to these vigorous young shoots that we would cut the bearing branches away. One must use his own judgment as to the advisability of this. If the tree bears as fine and luscious fruit as ever of course no such severe work need be done, but if not, then now is the time.

COMMUNICATIONS.

PLOUGH AND THE SPADE.

BY J. B., FREDERICKTON, NEW BRUNSWICK.

This seems to be the leading topic in recent numbers. It is true great men and things have had small beginnings. That Indiana English gardener has stirred up a hornet's nest, and some of them may be spiteful enough to sting if he does not look out. Well, I for one rather admire his spirit. For let it be known to Mr. Henderson, or any son of American birth, when he puts John Bull down as an old fogy, he touches every true Englishman's person. We will admit there are plenty there like the one he refers to, and I question very much if we could not find some American fogies. Mr. Henderson may say I did not call John a "fogy," but he says what is equally as bad. John Bull did not know or had not found out in 1872 how to pulverize his soil, yet he says John Bull, No. 2, laughed heartily at his benighted metropolis neighbor digging or delving. Well, I say, this "English gardener," by opposing Mr. Henderson a little, caused him to write a better letter than one might expect, and in a reasonable and gentlemanly manner. But still let us, as unprejudiced readers and tillers of the soil, not condemn the truth or facts, for the "English gardener" is right in saying that American florists cannot know everything about gardening in England. I understand him to mean that the American is altogether opposite to the English climate. The latter is cool and moist, the former dry and hot, so that nature soon prepares the soil for the American husbandman, while John Bull must wait patiently and oftentimes work in a different way than Uncle Sam, *and in some cases use different means.* Again, I think John goes in too much for outward appearance, to please the eye rather than fill his pockets. I have reference to horticulture or floriculture. Sam must do his work in a rougher or quicker way; labor being high, must move on faster; his object, not pleasure but profit. Habit is a wonderful power. It is hard to shake it; any reasonable person will acknowledge this. So with John Bull, or any other Bull. What a man has been educated to has a tendency to cling to him. Yet we all ought to have common sense enough to be open to conviction or reason. It is not the object of the readers of the GARDENER'S MONTHLY to throw stones at each other, but follow science or facts, which are stubborn things to get over; I might say we do not want to get over them, but abide by them. We only want to "get over" those that are "married to their own opinion," in spite of the facts.

And if John Bull did not know how to pulverize his soil until Mr. Henderson told him in '72, he certainly lived a long time to know very little.

MARKET GARDENING.

BY JOHN GUNN, WHITINSVILLE, MASS.

In an article on page 162, of the June number of the GARDENER'S MONTHLY, regarding market gardening by Peter Henderson, the natural inference would be that the difference in the cost of products in London and New York was attributable to the difference in the mode of cultivation. He says John Bull has not learned in 1872 that the plough and harrow will pulverize the soil better than the spade. I have no defence for the spade, as I never did like it, and have not done much with it since my apprenticeship. I think by a few facts I can throw a little light upon the subject. On page 337, he makes some statements with which I fully concur. He says he found it was the rule rather than the exception, in districts away from London, that the plough was the implement used. When Mr. Henderson was at Edgeware road, if he had gone about four miles to the south, or to Rainham, Essex county, he would have found the produce being carried to market by highway locomotives, and the ground ploughed by steam ploughs. I have seen at that place a field of ten acres ploughed, planted, and the field left in fine condition, in one day. That the spade and fork are used in some small market gardens is true, but the spade gardeners do not fix or control the

price of produce. I think there are other reasons than the mode of cultivation for produce being cheaper in New York than in London. I am impressed with the belief that the difference in rent has an important bearing upon the matter. I know of one man at Ashford, Middlesex county, fourteen miles from London, who holds one hundred acres, and for each acre he pays £7 per year. He is a spade gardener, the only one that I know of in that vicinity, and I have formerly known many. This man was amassing a fortune; his land was set with fruit trees in rows about twenty-five feet apart, and between cropped with beans, beets, lettuce, parsley, violets and strawberries. I have endeavored to show that our cousins across the water are not so much behind us in their adoption of improvements as many would suppose. But there is ample chance for improvements, both in England and this country, and probably always will be.

FRUIT FOR KANSAS.

BY ROBERT MILLIKEN, EMPORIA, KANSAS.

In the November number of the MONTHLY, just to hand, "T. R., Chanute, Kansas," inquires "What kind of apples, pears, plums and cherries will thrive best in this locality?"

Let me say to T. R. that he can get a perfectly reliable answer to that question by calling on Mr. James Truitt, Captain G. W. Ashby, or Dr. Bailey, banker, all old residents and experienced growers of these fruits, in that locality.

If T. R. will send one dollar, with his address, to G. C. Brackett, Secretary Kansas State Horticultural Society, Lawrence, Kansas, for a copy of the Society's last report, he will not only find the information he calls for, but much other information upon the horticultural interests of the State worth many times the money to him if he locates in the State.

In this report he will find that the Society has given the following list as the one to be relied upon, as far as the experience of orchardists of the State in the past have proved:

Apples—Summer, 5 varieties.—Early Harvest, American Sum. Pearmain, Carolina Red June, Red Astracan, Early Pennock. Autumn, 5 varieties.—Maiden's Blush, Fall Wine, Fameuse, Rambo, Lowell. Winter, 10 varieties.—Winesap, Ben Davis, Dominie, Gilpin, Rome Beauty, Willow Twig, Jonathan, Missouri Pippin, Rawles Janet, White Winter Pearmain.

Pears—Bartlett, Duchesse d'Angouleme, Howell, Flemish Beauty, Buffum, Louise Bon de Jersey, White Doyenne, Seckel, Vicar of Winkfield, Sheldon.

Peaches—Crawford's Late, Heath (cling), Large E. York, Stump the World, Old Mixon (free), Crawford's Early, Hale's Early, Amsden June, Alexander, Wyandotte Chief.

Plums—Wild Goose, Miner, Chicasa.

Damsons—Lombard, Sand.

Cherries—Early Richmond, English Morello, May Duke, Belle Magnifique, Common Morrello, Gov. Wood.

I wish to say to T. R. that he would do well to give heed to the advice and experience of those who have gone before and tested this matter.

LAWN MOWERS AND FRUIT TREES.

BY H. E. HOOKER, ROCHESTER, N. Y.

Among the benefits now being realized by the introduction of the excellent American lawn mowers, is one I wish to call attention to as capable of perhaps a large extension. I mean the use of the mower among fruit trees and grape vines.

I have observed that fruit as well as ornamental trees, after they are well established, do remarkably well upon lawns frequently mown, so that the grass never becomes long, and the mowings are left to shade and enrich the soil. These are the trees which people usually refer to when they claim that fruit trees do best in grass. Trees so situated, or growing in pastured lands, are under entirely different conditions for producing fine growth and fine fruit from those growing where a hay or grain crop of full sized and mature plants is grown among the trees and over their feeding roots.

Acting upon this observation, I have the past season seeded down and mown the grass between two of my trellises of specimen grape vines; the alternate space is still cultivated. The space mown gives access upon clean turf to one side of each trellis, so that all the fruit can be visited without soiling a lady's shoe. There is as yet not the least sign of deterioration in vigor of vine or quality of fruit from this treatment, and, of course, this one-half lawn might be continued indefinitely by manuring the other or cultivated space.

I intend to experiment carefully in this matter and see if it is not practicable to secure the beauty of the lawn, along with the fertility of

the garden, by using the lawn mower, and such fertilizers as may from time to time be indicated by the greater or less growth of the plants. It strikes me the cost of mowing frequently among fruit trees and grape vines would not greatly exceed the cost of plowing and hoeing, and the beauty and comfort of the thing, would be decidedly in favor of mowing.

This method would have the advantage of never tearing or bruising a root, and possibly would help a good deal in hard winters, frost not reaching the roots so severely.

EDITORIAL NOTES.

AUTUMN CAULIFLOWERS.—We notice that this delicious vegetable is much more common in the Philadelphia markets than it has been heretofore. The prices also bring them within the reach of purses of moderate size.

PHYLLOXERA IN EUROPE.—The Phylloxera Congress after an eleven days session, concluded that the best remedy for the European vine-grower, was to graft the Vitis vinifera on American stocks—at least that is the best suggestion so far.

ORCHARD CULTURE.—Some of our Western cotemporaries referring to practices in orchard culture in some places, take occasion to remark that a practice good for one place may be bad for another. This is exactly the doctrine the GARDENER'S MONTHLY has always taught, both in orchard culture and every other practice in horticulture. Practical articles, that is to say articles defining the practice of any individual, are always of great value, not for exact imitation, but as hints. No two locations have precisely the same circumstances; common sense and experience make successful fruit growers.

GROWING AMERICAN GRAPES IN ENGLAND.—Mr. W. C. Barry writes to the *Gardener's Chronicle*, recommending the trial of our best American grapes. But the summers are not warm enough. They would probably not ripen their wood, and be easily killed in winter. This is the experience with many American plants. Even our common silver maple is a comparatively tender plant in England. It wants more summer heat than the climate affords.

ROOT PRUNING.—Mr. T. Francis Rivers makes the good point that if there be at any time any advantage to the plant from scientific pruning of the branches, there ought to be by the same reasoning a science worth following in root pruning. Mr. Rivers' ideas are well appreciated in the transplanting of an oft-removed tree. It is the root-pruning it has received which makes it so safe to transplant, and this is but one instance of the advantage of root-pruning.

DANDELIONS.—There are few more delicious salad plants in early spring than blanched dandelion leaves, and it is remarkable that they are not more used. The roots can be dug in autumn and put in boxes of earth. A very little warmth in a partially shady place brings the crisp leaves forward. A correspondent of the *Gardener's Chronicle* has recently noted that the roots and growing leaves are much relished by horses in early spring, and that they seem to act medicinally on them to great advantage.

DIRECTOR ALPHAND PEAR.—The *Revue Horticole* of Paris, figured this Pear in its Sep. 15th issue, where it is represented as of enormous size, five and a half inches long by four and a half wide, larger than the finest Duchess d'Angouleme. It is said to possess the general characters of the Doyenne d'Hiver, and in aspect to resemble Belle Angevine. It is also said to be "very sweet, with an aroma *sui generis*." It "is good to eat in the month of February, but will keep to April" in France. Its origin is not stated.

THE CURRANT CATERPILLAR.—The gooseberry and currant caterpillars are great pests to American fruit growers.

The following recipe for dealing with these pests is given by a County Down subscriber to the "Garden," and which he states he had used there thirty years, and never failed with it until 1879, when the daily rain washed the salt off the leaves before it had time to dry or act on the young caterpillars. Mix 1 lb. of common salt with 8 gallons of cold water, but be careful not to exceed that quantity. About the second week in May, or as soon as perforated leaves are observed, choose a dry day and syringe the bushes with this mixture. Repeat the syringing in a week or ten days should more perforated leaves appear. This mixture, though destructive to young caterpillars, will not kill old ones; these must be hand-picked.

ASPARAGUS IN FRANCE.—Accustomed as we are to simple methods of culture, the trouble some people take in other parts of the world seems almost incomprehensible. Here for instance

is the account which a famous grower in Argenteuil, France, gives of his method:

"The asparagus plants must be planted near the surface of the soil, contrary to the general custom; and, also contrary to the general practice, they should also be planted wide apart. They must be earthed up in spring to have them tender and white. Earthing up is absolutely necessary, not only from a culinary point of view, but as a natural protection for the shoots, and to prevent the Asparagus from being blown over by the wind. That is the object fulfilled by the mound of earth in the culture of asparagus. Afterwards, when the leaves appear, it is necessary to tie the asparagus to stakes. This protection is of great importance, for when the wind knocks over the asparagus it breaks and splits their stems, so that there is no hope of saving them."

Imagine our people staking up asparagus! We fancy that with all the care given in France, our American article will surpass it.

American Apples in London.—The *Gardener's Magazine* says:—

American apples are now being landed at Liverpool in large quantities. In the fortnight ending October 23, no less than 100,000 barrels were received, and the market is fairly glutted. The ruling prices are: Newtown Pippins, 25s. to 50s.; Greenings, 9s. to 12s.; Baldwins, 10s. 6d. to 15s.; Kings, 12s. to 18s., and Spitz, 12s. 6d. to 15s. per barrel.

The Napoleon Weeping Cherry.—At a recent meeting of the Fruit Growers' Association of Ontario, Mr. Dougall, of Windsor, exhibited a photograph of a very handsome weeping cherry, and states in his letter that the origin of the weeping variety was a side shoot from the stem of a Napoleon cherry, that grew out below the graft and bent down to the ground. Some trees were budded from the shoot, one of which being worked up high grew to be quite a large tree, the others being budded at the ground never could be got to grow into a tree. The one from which the photograph was taken was budded subsequently at nearly six feet high, and shows a most perfect and beautiful weeping habit.

The Gregg Raspberry in Canada.—Says the Canadian *Horticulturist* of this black cap:—

Under the same treatment it is not only larger than the Mammoth Cluster, but fully as productive, and ripening just after the crop of Mammoth Cluster is harvested. Beginning with Davidson's Thornless, which is one of the earliest, the season of black caps is very much prolonged by adding a few rows of the Gregg to come in after the Mammoth Clusters are gone.

American Tomatoes in England.—The London *Garden* has the following to say about American tomatoes, but we are not so sure of the *Garden's* conclusion. A tomato ripened under an American sun is something no English climate can reach. Of course to get them in good condition to the English market, they would have to be gathered here before fully ripe, and this will prevent, perhaps, our best qualities reaching England. We have little doubt, however, that with experience, they will be placed on the English market in prime condition, and, if there be no other objection than that referred to by the *Garden*, we fancy American tomatoes have a fair chance of the best English market.

"We have just seen an importation of fresh American tomatoes from New Jersey. They have arrived in fair condition considering the distance, but although unbroken and very carefully packed, some of them were in that half-decomposed state so easily detected by the experienced eye. It is a mistake to send tomatoes here, for even if they could come in good condition they would have to contend with a large supply of English grown sorts, and most people would be inclined to purchase the article that could be had fresh, even if dearer. They were packed in paper, and the interior of the box was lined with oiled paper."

Grape from N. H. Lindley & Co.—We received a grape from this firm Nov. 20th, in very good condition of preservation, and altogether a very good grape; but no word as to what it was or intended to be.

Leny's Winter Peach.—From Mr. Needham of Washington, D. C., we have a colored plate representing a yellow peach three and three-quarter inches wide. It is said that when gathered in autumn before hard frost, it will keep through November, and that the flavor is first-class.

SCRAPS AND QUERIES.

Improved Pine Apples.—J. C. C. D., Leesburg, Florida, writes: "My object in writing is to ask you whether you can give me the address of

some party to whom I can apply in order to obtain pine-apple plants or buds of the varieties raised under glass in England. Seedsmen to whom I have applied have given me no information. I have some fine varieties which have fruited up to five and half pounds in weight, but wish to get others if possible. Gardening and fruit raising here is quite different from Northern ways."

[We have had several letters like the above recently. We do not know that any firm has them for sale. If they have, it would be an advantage, we think, to make the fact known.—Ed. G. M.]

FORESTRY.

COMMUNICATIONS.

FORESTS AND FORESTRY.

(From advance sheets of the Annual Report of Penna. State Board of Agriculture.)

BY THOS. MEEHAN, BOTANIST OF THE BOARD.

The matters brought to the attention of your Botanist this season have been chiefly in relation to the important subject of forestry. There is a growing feeling of anxiety in regard to the future, and an increasing disposition to encourage timber planting, providing anything practical in that direction can be done. The mining and the railroad interests particularly are concerned for the future of our lumber supplies, and in order especially to study the coming timber question, your botanist devoted two months of the past season, at his own expense, to the examination of the forests of Virginia, North Carolina and Tennessee, the transportation being kindly furnished through the personal exertions of President Hinckley, of the Philadelphia, Wilmington and Baltimore Railroad Company; and later in the season, a short time was spent among the forests of Schuylkill county, through the kind invitation of the Board of Girard Trusts, of the city of Philadelphia. The result of these investigations is the knowledge that there is very much more timber in the country than people generally believe, though at present in localities not convenient, as a general thing, to market at paying prices; that near the present sources of supply there is a growing dearth of timber, and it is this prominent fact that creates so much alarm, and the prevalent fear that the whole timber supply will soon give out; and, finally, it is apparent from your Botanist's investigations that when there shall be a real scarcity of lumber, so as to affect the market price seriously, it will pay companies to plant timber; and forests so planted will come into use, when properly cared for, in much less time than the community has been led to believe.

Our forest literature has been mainly made up from European sources, or suggested by European experiences. Trees grow in many places there very slowly. The oak in England has been known to live one thousand years, and the writer has seen some five hundred years old, and still with many hundred less cubic feet of lumber than many American oaks not two hundred years old. Indeed, it is doubtful whether any timber trees in the eastern Atlantic States reach two hundred years of age without exhibiting signs of decrepitude, in which case the tree makes poor lumber, and is really fit for little more than fire-wood. During the past season a large number of trunks and stumps have been examined, and, by carefully counting an inch where the annual growths are the smallest, and an inch where the annual growths seemed most rapid, and taking an average with which to measure the diameter, very much of the lumber of commerce was found to be from trees less than one hundred years old, and very few trees found with rings showing over one hundred and fifty years. In going through the Shenandoah Valley of Virginia, the absence of any remarkably old trees was very apparent, and Major Jed. Hotchkiss, an able naturalist of Staunton, Virginia, furnished proof entirely satisfactory that when the white man settled in the valley it was wholly clear of timber, and that most of the immense quantity we find there now has grown up during the past one or two hundred years. In like manner the probability is that in all the large valleys of Pennsylvania there was no wood at the early settlement of the State. This is the tradition among almost all who have had family estates for several generations; and this is confirmed by the recent investigations of Dr. Joseph

Leidy, of the Philadelphia Academy of Natural Sciences, who reported to that body recently the finding of the bones of the buffalo in caves of northeastern Pennsylvania, an animal which does not exist in wooded countries. Indeed, the tradition is, especially in the Cumberland Valley, that these valleys were annually fired by the Indians, chiefly that trees might be kept down and food provided for the buffalo instead. We have cut away a great deal, but then we have gained some, and the fact is worth remembering.

In the States of Virginia, Tennessee and North Carolina there are, at the present time, millions of acres of magnificent forest trees. Among these are white oak, chestnut oak, red oak, and the tulip poplar in immense quantities; with a great quantity of species, useful but less known, used in the leading arts, such as beech, birch, elm, sweet gum, black or sour gum, buttonwood, linden, cucumber, and other magnolias, ash, sugar and other maples, locust, chestnut and horse chestnut, walnut and hickory, enormous sugar berry trees, and dogwoods larger than in the north, besides many others interesting to the botanist; but for which the special uses have yet to be found. Besides these, there are among the resinous trees, immense quantities of the yellow pine, (*Pinus tæda,*) bull pine, (*Pinus mitis,*) and Post or Jersey pine. (*Pinus inops,*) which grows up into forests of straight trees, very different from what we find them in New Jersey and Pennsylvania. Besides these are hemlock, spruce in some quantity, white pine in less, and in still smaller quantities balsam fir (*Abies Fraseri*), and black spruce (*Abies Nigra*).

(To be continued.)

SASSAFRAS TREES IN MASSACHUSETTS.

BY JAMES J. H. GREGORY, MARBLEHEAD, MASS.

I recently read an article in some agricultural publication, the name of which has slipped my memory, where it was stated that while the Sassafras attained to the size of a tree in the South, in New England, owing to an unfavorable climate, it was so dwarf in its proportions as not to deserve the name of a tree. This is a mistake. One of my neighbors a few years ago cut down several trees which were twenty-five feet in height, and my next neighbor has now one or more on his premises which is from twenty-five to thirty feet in height, and nearly three feet in circumference at its base. On one of my farms in Middleton, in the eastern part of Massachusetts, there stand three Sassafras trees, two of them about thirty feet in height, while the third measures over fifty feet in height, with a circumference of five feet four inches at its base. The tallest tree, standing alone near a wall, on a hill-side, is yet healthy and in good vigor, though a few years ago while burying cabbage near its base, some large roots were severely pruned. It is evident, therefore, if the Sassafras is scarce as a tree in New England, it is not by reason of an unfavorable climate. I will hazard the guess that the restless fingers and knives of Yankee boys after its fragrant twigs and roots have proved a hindrance to its tree development far greater than the climate.

EDITORIAL NOTES.

THE BLACK WALNUT.—While there is a great deal of loose talk about the danger of the United States being without a stick of timber within the near future, there is no doubt but that it will pay now to plant some kinds of trees in some particular situations. There are yet millions of acres of American forests growing up or in decadence, and which will not to-day bring $5 an acre. Near some large consuming centres timber has become scarce, and in prairie countries it has to be planted. But there has really become a scarcity of black walnut, and there is little danger of any one "investing in a dead horse" who plants it. When traveling through Indiana some weeks ago, the writer saw some logs that had brought $100 each. Even under the ordinary course of nature such logs could be produced in forty years in an Indiana climate; but with a little careful culture in infancy, such as one would give corn, we believe as good logs could be had in half the time. Thousands on thousands of people flock to the life insurance companies, paying, perhaps, from $100 to $1,000 a year for the future good of their families, starving the present that the future may be made rich, but which insurance would not yield anything like the sum ten acres of black walnut would do, and without all the annual drain on the family revenue. Mr. Nuttall says in the *Sylva*, that the next neighbor to the black walnut, the butternut, yields as much sugar as the sugar maple. We have never heard of any further experiments in this direction than those quoted by Mr. Nuttall. Do our readers know anything about this? or whether the black walnut has also saccharine properties

SCRAPS AND QUERIES.

RED BIRCH FOR PAPER PULP.—B. B., Lebanon, Pa., asks the following question, for which we should be obliged by information about from any one who knows: "I have a large quantity of what I take to be red or river birch. The trees are of all sizes, from quite small to very large. The wood is white and short in fibre. Can you inform me whether it is used in the manufacture of wood pulp for paper, and details?"

NATURAL HISTORY AND SCIENCE.

COMMUNICATIONS.

OBJECTS OF SEX, AND OF ODOR IN FLOWERS.

Read before the American Association for the Advancement of Science, Saratoga, August, 1879.

BY THOMAS MEEHAN,

Professor of Botany in the State Board of Agriculture of Pennsylvania, and Fellow of the Association.

Students of nature, who have thoughtfully observed, must have noted at least two great objects in the creation of sex. The first and leading one is evidently to insure variation; the second to aid and assist reproduction. But our text-books say little of the first; while every behavior of flowers is regarded as relating to the last, and hence we have so much said and written on the advantages of cross-fertilization, as if reproduction were the sole end and aim of sex.

That reproduction is not the sole end of sex is apparent from the fact that reproduction by cell division is more common in vegetation than reproduction by seed. Bulbs, tubers, rhizomes and other subterranean structures, with bulblets, runners and other arrangements above ground are familiar examples. Many plants with colored corollas rarely seed, while some never do. Of these I might name Ranunculus Ficaria, Lilium tigrinum, the Horse Radish, Cochlearia armoraica, &c.; and again are those which depend on insect or similar agency for pollenization, and though apparently as a result bearing seed abundantly, yet rarely producing plants in nature from these seeds. Of these last, I need only refer to Yucca and Orchideæ as the best known of the class dependent on insect fertilization. The terrestrial orchideæ of the United States mostly fruit in great abundance, and there are many thousands of seeds in each capsule; yet my researches have rarely been rewarded by plants that I could believe to be seedlings; while in nearly all cases the relation by offsets from a parent plant was plain. On the other hand, orchid locations are declining, and Yucca confines its species to comparatively limited locations, apparently raising a crop of seeds more for the sake of feeding the larvæ of the Yucca moth, than as an aid in plant distribution. So far as reproduction is concerned, it will not be denied that millions on millions of seeds are created in vain, that thousands of millions of flowers bloom uselessly, that volumes of odor and tons and tons of pollen are given to the winds and to the insects, without any possible benefit to the individual, which could be made to increase without any of these productions of no conceivable benefit to the race, except as might arise from some imaginary good from cross-fertilization. We see from these simple considerations that sex can have but a very remote relation to the good of the individual or the race; and we may reasonably look about for some more important service which sex is to render.

We find this in variety. This is essential to our present conditions of existence. Imagine the higher order of animals increasing by division! Each would be exactly like its parent. Mr. Smith could not tell himself from Mr. Brown. But the union of two distinct individuals, and each individual with varying powers of transmitting identity, leads to infinite variety, by which each can clearly distinguish that which is his from what is his neighbor's. Variety is a greater necessity to sentient beings than to inanimate things; hence we see that propagation through sex is imperative among them. But it can, in this respect, make no difference to a plant. It is of no consequence to one blade of grass that another blade should be or not be just like it. But it is of great consequence to

the animal life that is to feed on them. Each kind is made to prefer some kinds of fruit and vegetables, which must have distinct characters in order to be easily recognized; and hence we have at once a good reason for form, color, fragrance and the infinite variety these productions give rise to. If this view be correct, and I cannot conceive that it can be controverted, it puts a new view on modern teleology. In all the discussions on the various arrangements of plants and animals, we hear only of what good is to result to the individual or to the race. This is the essential character of the doctrine of natural selection. But on the principle that I have sketched out—the principle of variation—we see plants and animals not working merely for their own good, although that is incidentally involved, but for the good of generations yet unborn, and in which they can have no interest. Indeed, following the inexorable law of variation, plants may be said to be laboring to make themselves distinct from each other so that the various animals may be better able to recognize and consume them. They must necessarily be under the control and direction of an outside power, which clearly foresees that there will be mouths, and judgment required to select the food which is to go into them; all of which would be useless unless plants were forced into a variety, which is thus to enable them to be the more easily sacrificed when the proper time arrives. Of course the selfish views embodied in the modern doctrines of teleology must be incidentally true. No individual would work unless it supposed it was working for its own good. Pleasure must be a condition of existence. This also must be a universal law, and "natural selection" so far to be conceded. But this law must of necessity be limited. It is not for the good of a plant that it should be eaten by an animal; but it is perfectly consistent with the law of universal good that it should have just enough of thorns, or bitterness, or some other measures of defence to keep the race from being utterly annihilated.

May we not conclude from all this that variation and not reproduction is the one great law to which we are primarily to refer all sexual phenomena; that reproduction occupies only a place subservient to this law; and if so may we not proceed to review the theories which have been established under a mistaken idea of the order of things?

I propose to examine, but I shall confine myself here to only one subject; indeed to but a part of that subject, namely, the relation which odor in flowers bears to modern theories of cross-fertilization.

(To be continued.)

VEGETATION AND MAN.

BY REV. L. J. TEMPLIN.

The whole history of the vegetable kingdom from its inception to the appearance of man seems to have been one of preparation. It was a course of gradual development from the lowest and most simple forms of vegetable organisms, up through a regular ascending scale, to the most perfect and complex forms of the present time. At just what stage of geological history vegetable life was introduced, is not very definitely determined. It is now thought that this introduction must be placed back in the times of the Laurentian rocks that have until quite recently been considered nonfossiliferous. This opinion is based on the fact that these rocks are composed, in part, of extensive beds of limestone, which contain large quantities of carbon. This carbon, it is reasonable to suppose, was originally taken from the atmosphere, and "fixed" or consolidated by the action of plant life. It is at the beginning of the Lower Silurian rocks that we find the first undoubted appearance of vegetable remains These are all Thallogens, flowerless plants lacking proper stems and leaves. To this class belong all the algæ or sea weeds. Towards the close of the Silurian age appears a higher order of plants—the Acrogens—having both stems and leaves, but having no true flowers. These include ferns, club-mosses and other spore bearing plants. In the next, or Devonian age, there existed enormous ferns, lycopodiums, tree-rushes growing over twenty feet high, and lepidodendron. Here also we have to note the first appearance of a still higher class of plants, the Gymnogens, or cone-bearing trees. That there had existed, previous to their appearance, plants that bore some general resemblance to our pines is doubtless true, but that these conifers were derived from more ancient forms by "descent with modification," does not seem to rest on any basis of proof. The fact, too, that from this period we find the two great divisions of plants—Acrogens and Gymnogens—running a parallel course, when, in fact, the one should precede and the other follow, as ancestor and descendant, makes it a little awkward for evolution. It was, however, in the next, or Carboniferous age, that

these plants had their most wonderful development. Extensive forests of dense growth covered wide districts of low, perhaps marshy country. The world, neither before nor since, has ever borne such a luxuriant vegetation as during the formation of our coal deposits. Tree ferns, twenty feet in height; Lepidodendra, of our club-moss type, from fifty to seventy feet; Sigillarids, sixty or more feet, and conifers that must have lifted their heads a hundred feet above the soil, with innumerable plants of more humble character, composed these grand forests. During this age also appear monocotyledonous plants—a few palm-like trees (Palmacites), a few date-like fruits (Triganocarpum), and a few grass-like herbs (Poacites). Some idea of the extent and richness of the flora of this age may be gathered when we remember that it required from eight to twelve feet of vegetable matter to make one of coal, and our coal deposits range from an inch or less to more than forty feet in depth, and there are known to be over 260,000 square miles of coal fields in the world. In the next age—the Reptilian age—in addition to ferns and conifers already noticed, we find a family of plants—the Cycads—that seems to stand between these two, being allied to both the ferns and conifers, and resembling stunted palms.

In the later or cretaceous period of this age we first meet with trees that are familiar to us at the present time, among which are the true palms, the oak, willow, beech, sassafras, etc.

The age of Mammals contained great numbers of those just mentioned, and the maple, hickory, mulberry, elm, sycamore, &c., flourished in abundance. During this age the ferns and conifers that had held so conspicuous a position in former ages are found taking an inferior position, while the dicotyledonous division comes to the front as the most important class. We are now approaching the age of man, but before proceeding to speak of those families of plants that seem to have been ushered in almost contemporaneously with man, I wish to call especial attention to one fact concerning the plants that flourished during the former ages. I have spoken of the rank, profuse character of the vegetation that prevailed especially during the age of coal, but it seems that amid all the verdure of these dense forests and herb-covered plains no animal browsed, no flocks or herds were there to graze, indeed scarce an insect was there to bore or cut amid all this luxurious foliage. Though rank and dense, it was sombre and gloomy, and unfit to minister to the wants of ruminant animals. Indeed, it was not till the age of mammals was reached that a flora existed that was calculated to support herbiverous animals. And some of the most important families of plants, at least so far as animals, and especially man is concerned, do not seem to have appeared till near the time that man took up his abode on earth. According to the best information at hand, the family Roseæ did not appear till a short time, geologically speaking, before the advent of man. To this family belong the rose apple, pear, quince, peach, plum, cherry, apricot, blackberry, raspberry, strawberry, and other plants of importance to the human family. In the absence of this family, and with nothing else to take its place, we should be left in a destitute condition for fruits that contribute so much to the sustenance and pleasure of life in the temperate regions of the earth. Another family (Gramineæ), the true grass family, was introduced so nearly coeval with man that I believe no evidence exists that it had preceded the age in which he appeared. I need but mention that to this family belong all the true grasses and the cereal grains without which we can hardly conceive of the existence of our domestic animals, much less of man, especially in a state of civilization or refinement. There is still another family, though less important than those that have just been mentioned, but which still contributes much to the happiness of the race. I refer to the mint (Labiate) family, that furnishes so large a share of the perfumes and essences so much used at the toilet, in confections and in medicine. These three families of plants, that seem so essential to the existence of man and the animals on which his well-being depends, all seem to have been ushered in almost simultaneously with man himself.

At no time previous to the age in which he actually appeared was the earth a fit habitation for such a being. The vegetation, though abundant, was not adapted to the wants of such a being. Had he made his advent during the carboniferous or reptilian, or even in the mammalian age, he would have found nothing in the way of vegetables upon which to subsist except a few liliaceous roots and some nuts and dry seeds, that could never have lifted him above the condition of a low, groveling savage. It is an interesting question whether the appearance of man so nearly simultaneously with that class of vegetation on which his well-being so largely

depends was a mere coincidence or whether it was the result of some directing intelligence. If the doctrine of evolution is to be accepted, then we are to believe that, starting with the lowest forms of organic beings, development took place in two directions, forming two great branches—the animal and vegetable—and that through all the changes—the starts and stops and retrograde movements—under the operation of mere blind force, without any directing intelligence these two branches should run such an even parallel course that at the very time that the animal branch has culminated in its highest effort and crowning glory, man, the corresponding branch, has just reached its culmination in the perfection of those high specialized types of vegetable organisms upon which his well-being absolutely depends. Surely a "law" operating simply as a blind force that can produce such wise and beneficent ends is almost worthy of being worshipped. But, after all, does not this hypothesis, for it is nothing else, require a greater demand on one's credulity—a greater strain on his faith, than to believe that at the beginning of man's career an All-wise, beneficent Being "Planted a garden in which was every tree that was pleasant to the eye and good for food," and then placed man in it to dress and to keep it?

EDITORIAL NOTES.

OBJECTS OF SEX AND OF ODOR IN FLOWERS.—The paper which we give under this title excited much interest when read, and was ably discussed by Prof. Burt G. Wilder, Prof. C. V. Riley, Mr. Lester F. Ward, and others; the discussion closing by a request that the author would re-introduce the subject at the Boston meeting; which, however, it did not seem expedient to him to do. It appeared subsequent to delivery in the *Scientific American*. By a former ruling of a committee of the body on one of the author's productions, that a paper published in advance of its transactions, cannot appear in its published proceedings, it will not be found in that publication. A large number of the members, however, who get the volume, have expressed to the author their disappointment at not seeing it there, and this has induced him, though at this late day, to republish it here.

VITALITY OF SEEDS.—Exact figures as to the length of time seeds will retain their vital powers are not common. But here is one. Mr. Leroy of Columbia College, looking over, in the winter of 1879–80, the plants of Wilkes Exploring Expedition, collected in Patagonia, between 1838–42, found three seeds of a gourd, which were planted in his garden in the spring of 1880. Two of the three grew, and bore fruit the same season. This fixes forty years of vital power for these seeds.

COMMON NAMES FOR PLANTS.—In England, a movement has been inaugurated to give common names to plants that have not yet become common. Botanical names often seem hard, and an easy common name very desirable; but we fancy to be successful with popular names they must spring spontaneously from the popular mind. In botanical names, there is the advantage of a recognized rule for naming plants, and which all scientific men agree to abide by, but there is no such rule in regard to common names. One man feels as good as another to give a plant a common name, and we should soon come to the stage when one person could not tell what the other is talking about. In a recent number of the *Garden*, for instance, we find the following "common names" given to plants, which names are already either appropriated by other plants, or the plants have other names: Silver Maple, Acer negundo variegatum; but Silver Maple here is Acer dasycarpum; Spice shrub, Calycanthus floridus—the common name of Laurus Benzoin. Tassel flower is given as Cacalia coccinea, but which is surely more generally known as Venus' Paint Brush. Cigar flower, Cuphea eminens, is more used wholly for Cuphea platycentra. Morning Pride, Scabiosa, is Mourning Bride, and a curious instance of how a common name may become corrupted. Joseph's Coat is here appropriated to Amarantus tricolor, but we are mistaken if there are not at least half a dozen other plants that would claim a share in that celebrated garment.

All these litttle facts show that there is trouble ahead for those who are working among common names, as well as for those who deal in the often harder botanical ones.

FREEZING OF PLANTS AND INSECTS IN WINTER.—Most of our readers know that we have repeatedly brought to their attention reasons for believing that plants and insects cannot have their juices freeze in winter and yet retain subsequent life. One of our chapters, as it may also be remembered, was handed to one who stands

high in scientific repute for his opinion, which was simply, "Freeze! why of course they freeze." And this was regarded as a conclusive argument against us. But now that Dr. Jousset de Bellesme has announced in *Les Mondes*, that "Where a pupa resists congelation, it does so by a continuous and considerable liberation of heat." and that it is to active combustion that we must attribute the faculty with which insects bear very prolonged depressions of temperature," some of our friends who knew that "of course they freeze," do not feel quite so sure about it.

CORNUS MAS ELEGANTISSIMA AUREA.—And now it is a "Golden Dogwood" that has been afflicted by this "tony" name.

TENDER ASPARAGUS.—It is not well known, though often noted by the GARDENER'S MONTHLY, that many plants are not hardy simply because they have too much or too little heat in summer time. The exact conditions of health will alone produce a constitution capable of bearing misfortune. Many of our hardy trees are tender in England through a deficiency of summer heat. In the severe winter of 1879–80, according to the London *Garden*, numberless beds of asparagus roots were totally destroyed, no doubt for want of healthy maturity the season before, for the plant will endure the severest American winter.

VITIS BERLANDIERI.—M. Planchon has communicated to the Academy of Sciences some particulars of a new American species of vine, which he proposes to call Vitis Berlandieri. It was discovered in New Mexico or Texas in 1834, and has been described under the names of Vitis æstivalis, var. monticola, Vitis monticola seedling, and Vitis cordifolia coriacea. Recent experiments in cultivation show it to be distinct. It is worthless in itself, but its roots exhibit in so remarable a degree the hard, smooth texture supposed to be inimical to phylloxera that great hopes are entertained of it as a stock for grafting other sorts.

ALCOHOLIC FERMENTATION IN PLANTS.—By the following, which we find in the London *Gardener's Chronicle*, it will be seen that the discovery is somewhat akin to those of Prof. Burrill and others in this country:

"When plants are deprived of oxygen gas it appears that alcohol is formed in all their tissues without the aid of any ferment. If a vegetable cell containing sugar be cut off from its supply of oxygen—be suffocated, in fact—the sugar it contains becomes broken up or changed into carbonic acid, alcohol, and other products. Moreover, the various alcoholic ferments only produce their effects under the same conditions. Alcoholic fermentation, then, depends solely on the suffocation of a living cell containing sugar. Starting from these ascertained facts, M. Van Tieghem, in a recent number of the *Annales Agronomiques*, alludes to a peculiar disease in apple trees due to a suffocation of the roots, followed by the production of alcohol in their tissues. On microscopic examination the tissues were found healthy, except the medullary rays, the cells of which, instead of containing starch or sugar, contained brown oily globules, the residue left after the formation of the alcohol, which latter is diffused throughout the root, tinging the cells of a characteristic brown color, and giving rise to an easily detected alcoholic odor. Judging from these appearances what was the nature of the disease, M. Van Tieghem made inquiries as to the character of the soil, and from this, as well as the fact that the season had been extremely wet, his diagnosis was confirmed, and he in consequence prescribed efficient drainage as the remedy for the disease, and with good effect.

GRAPHALIUM POLYCEPHALUM.—This is the plant inquired about in the following paragraph from the *Garden:*

Will any American friend of the *Garden* tell me to what plant Oliver Wendell Holmes alludes in the following passage from the "Autocrat of the Breakfast Table": "Perhaps the herb *Everlasting*, the fragrant *Immortelle* of our autumn fields, has the most suggestive odor to me of all those that set me dreaming. I can hardly describe the strange thoughts and emotions that come to me as I inhale the aroma of its pale, dry, rustling flowers. A something it has of sepulchral spicing, as if it had been brought from the core of some great pyramid, where it had lain on the breast of a mummied Pharaoh. Something, too, of immortality in the sad, faint sweetness lingering so long in its lifeless petals; yet this does not tell why it fills my eyes with tears and carries me in blissful thought to the banks of Asphodel that border the *River of Life.*"

THE BULL'S EYE.—"The GARDENER'S MONTHLY cites as an illustration of the unstability of the popular names of plants, the fact that our ox-eye daisy is known in Scotland as horse gowan.

Here in Marblehead it is commonly called bull's eye, and we were quite surprised to find on our recent visit to St. John, N. B., that this was the popular name there."—*Marblehead (Mass.) Messenger.*

VINEGAR.—The recent discovery of a ferment fungus in fire blight and yellows, renders all information about the growth of these little plants interesting, We give the following from the Boston *Journal of Chemistry*:—"The transformation of alcoholic liquids into vinegar has long been a matter of discussion. Pasteur holds that the formation of vinegar is a physiological phenomenon, caused by vegetation of a particular bacterium, the *Mycoderma aceti*, while Liebig sees in it merely a chemical action of oxygen on alcohol. Recent observations by Herr Wurm, at the Breslau Institute of Plant Physiology, are regarded as putting the former view beyond a doubt, and Herr Wurm has succeeded in effecting the industrial manufacture of vinegar in accordance with Pasteur's idea. The conditions are a sowing of pure bacteria, a uniform temperature of 30° C., and a well regulated addition of alcohol. The process goes on in large covered wooden receptacles (with side-holes for air), into which are put 200 litres of a mixture of vinegar, water and alcohol, along with some mineral salts,—phosphates of potash, lime, magnesia and ammonia. The manufacture is considerably more rapid than that by the old method, and more economical."

NOTES AND QUERIES.

MONSTROUS ROSES.—Rev. E. P. P. says: "I have on my table a rose fully developed (Pius IX); out of the center rises a perfect stem, bearing a perfect rose, calyx, petals, etc., the rose is not quite fully opened."

[Morphologically, a rose flower is but a contracted branch. The leaves or petals of the flower might have been real leaves, and it is such illustrations as this which prove the law.—Ed. G. M.]

LITERATURE, TRAVELS AND PERSONAL NOTES.

COMMUNICATIONS.

NOTES AND QUERIES—No. 20.

BY JACQUES.

Bee-keeping in Paris.—Among the industries of Paris the keeping of bees is one that is much practiced, and frequent complaints have been made to the police about the nuisance this occasioned. One inhabitant keeps from eight to nine hundred hives. Valuable as is the possession of bees to the owners, there is no question but that they do a great deal of damage in various directions. At the Say sugar refinery, it is calculated that the damage amounts to 25,000f. a year, for a whole jar-full of syrup will be completely emptied in less than a couple of hours, and two or three bushels of bees are taken or destroyed within the day. The workmen, who are obliged to follow their occupation bare to the waist, suffer terribly from these little pests, and frequently get badly stung.—*Leeds Mercury.*

More California Items.—Says a correspondent, "The Live Oak grows singly, or in its park-like groves, and is a most beautiful tree, but utterly valueless here for anything but firing. Its companion along the water courses, the button-ball, though unlike its eastern cousin in having four or more balls strung at intervals on one string, and in having a large leaf, is as worthless as the Sycamore of the Atlantic.

"One place we visited," he continues, "had thirty acres of currants, and this fruit, as well as the cherries of this region, is, perhaps, the finest and largest fruit in the world. But what shall we say of the following, its facts being fully confirmed.

"One day we camped near a ranch at Grayson, and watched the Leviathan harvester at work. Twenty horses in two lines were hitched, one-half on each side of the ponderous pole which extended behind to propel the colossal machine. The end of the pole in the rear was supported on a castor-wheel, and a man on a high seat on the pole, guided the huge engine by a tiller. In front was a cutting bar snipping off only the heads of the grain, and making a swath sixteen to twenty feet wide. The height of the

cut was regulated by a man on the platform of the great machine. Another man attended a large lever, and the heads of the grain fell into an endless apron which carried them to an elevator, which in turn lifted them to a mammoth thrasher mounted on the platform. Another man attended the thrasher which ran out its debris on the cut stubbles, and delivered its thrashed grain into a fan, also carried on the platform. This fan also had an attendant, who swiftly supplied it with empty sacks, sewed up the full ones, and then dumped them overboard into the ocean of a grain field through which they were travelling. Thus forty acres were cut, thrashed, cleaned and sacked per day by only four men and twenty horses! Wagons following gathered up the precious freight and hauled it to the river side for embarkation. The harvester was attended by a kitchen on wheels, so that the men had no need to return for meals. The owner, Mr. F., said he was only a one-horse rancher, and yet he drove his machine two and a half miles through grain in one straight stretch without turning." This seems like romance, but it is all certainly true.

The Woodbine.—Gentleness or fragility is not exactly attributable to the woodbine; it has strangled many a tree. Cowper more correctly describes it:

> "In spiral rings ascendes the trunk and lays
> Her golden tassels on the leafy sprays,
> But does a mischief while she lends a grace,
> Straightening its growth by such a strict embrace."

Tulips.—In 1835, the bulb of a new Tulip, called the Citadel of Antwerp, was sold to M. Vanderwick, of Amsterdam, for £640. For a Viceroy, on one occasion, were paid four tons of wheat, eight tons of rye, four fat oxen, eight pigs, twelve sheep, two hogsheads of wine, four barrels of beer, two barrels of butter, one thousand pounds of cheese, a bundle of clothes and a silver pitcher.

In a recent issue of *Nature* appear some interesting notes by Professor Baillon upon Peperomia scifolia, an ornamental plant that is cultivated in stoves, the variety argyreia being an especial favorite. The leaves are peltate, and sometimes so much hollowed that they contain a quantity of water from sprinkling the plants, or condensation. Small insects frequently fall into these little pools and are drowned. In referring to this, Professor Baillon states that "Last year when the season was warm, and when the windows of the house were often open, the number of insects was very considerable, and these soaking in the water gradually decayed, and it was remarkable that during this there was not the least sign of any putrescent odor. Those who believe in the doctrine of insect-eating plants may perhaps in this be led to find an argument favorable to such a theory. They will add that the variety of colors so strikingly seen in these leaves, constitutes the agent of attraction for the insects to come and be devoured."

Climbing plants is the topic of greatest interest in the *Popular Science Review*, for July, 1880. It is by Francis Darwin F. L. S., and has been copied with its illustrations into Appleton's *Popular Science Monthly*. Most curious are its facts and observations; every one interested in plants should peruse it; too long for these pages, it is with regret it is passed.

EDITORIAL NOTES.

VISIT TO HON. M. P. WILDER.—EDITORIAL LETTER.—During a visit to Boston last autumn, about the time the grapes were ripe, I made a hurried visit to the home of Mr. Wilder, and was pleased to find him in as excellent health and spirits as if it were a dozen years ago, excepting, perhaps, a somewhat slower and more careful movement, resulting from his severe accident several years since. He was full of enthusiasm over the prospective meeting of the Pomological Society in Boston, next autumn, and there is no doubt but the members generally will have a gay and happy time. Mr. Wilder had just left for my company the shade of a magnificent beech tree, on the trunk of which he had engraved his name, as boys are wont to do. I could not help wishing that he would be there in ten years' time, to add another postscript to the chapter he recorded there that day. With so much to look forward and hope for, there was still much to recall what had passed. It is now nearly thirty years ago since I had pointed out to me in the upper part of New York city the old greenhouses of Michael Floy. All some of us now know of him is that he was one of that famous set which made America celebrated for improved camellias. Camellia Floyii was at that time a standard sort,—and here I had the whole story brought back to mind by the veritable original plant. It cost Colonel Wilder $250 to get that original plant forty years ago; and it seemed quite contented to remain in its present comfortable quarters as many more. The original of the famous Mrs. Abby

Wilder is also still here,—a splendid pyramidal plant. The Colonel is still busy at work in raising improved seedlings; two very fine whites bloomed this year.

His chief delight, however, seemed to be in his azalea and lily seedlings,—on the latter, especially, he was enthusiastic. It was then about the flowering time. Boasting of his fondness for work, I happened to ask him where were his tools, and he at once took from his pocket his camel's hair brush for administering foreign pollen, lead pencil, note-book, threads of different colors labels, &c., with which he carried out his hybridizing plans. We can all "live and learn," and I felt very much the force of it here amidst these successes. Here were some kinds producing seed vessels that I could never induce to seed at all. Of course, I was only too glad to express my profound ignorance, for one who goes through the world knowing everything, seldom gets the chance to learn much. The Colonel kindly told me how he did it. Before the flowers opened, the flower-stems had strings tied round them tightly in order to check the supply of nutrition, and this brought them to the fruiting stage. How strange it is that after something is told to us, we seem to have known about it long ago. Here was I, who had written chapters on chapters showing the antagonism between the vegetative and the reproductive forces in plants—who knew well enough that ringing the branches of a vigorous but unfruitful tree would throw it into fruit; and yet I never had the sense to reflect that the same law which made barren branch flower, ought to make a barren flower seed. The subject brought up a little talk about Darwin and clover, Spenser and change, by development,—and while we do not feel free to say that Colonel Wilder is an advocate of evolution, we feel sure he is an earnest believer in progression.

Most greenhouses in summer time are among the things we never talk about in the presence of ears polite,—but here I could go through without a ruffled temper, for everything was neat and clean,—and indeed it was a real pleasure. Gloxineas and other gesneraceous plants encouraged us charmingly.

Here also hybridization was going on, and I was much interested in a plant raised between a Plectopoma and an Achimenes. Crossing and hybridizing and the raising of new and improved varieties, seemed indeed to be among the chief pleasures in the daily life of the veteran horiculturist. Out in the garden, among the strawberries and grapes, it was the same thing. Either something to watch for its prospects, or something which told a tale of success already won. But among the greatest of all pleasures was it to halt every once in a while and listen to his tales of his contemporaries. He would now have a word of praise for this one for what he had done, or some sort of commendation for another. Now he would start to show how this one had scarcely had enough credit for this, or that he should always be remembered for something else. What a pleasure it is to be with one who brims over with good will to all and malice towards none! I could not help asking myself whether it was horticulture or the man that deserved the credit of the kindly heart? In this case I fancy both may claim a share. There is one point in these little garden corner chats I must repeat and endorse. He thought Rogers, the Salem grape-improver, had scarcely received the thanks he was entitled to. He was the first to show that grapes could be really crossed, and this he showed amidst much unbelief,—yet to the successful stand made by Rogers we owe much of the great gratification the numberless good grapes now give us. Marble monuments have been erected to men who have done far less for their country than Rogers has.

The famous pear orchard of 3,000 trees was not bearing well this year, and for the first time in its history some little fire blight appeared. I should like to write more of this interesting place, of its kindly owner, and the charming hospitality of Mrs. Wilder and daughters, but the pressure on the editorial pen warns me that I must not dwell too long on my own pleasures, but close this letter for other work.

DAVID FERGUSSON.—As we go to press the public papers announce the sudden death of Mr. David Fergusson, the well-known proprietor of the Laurel Hill Nurseries, Philadelphia. Mr. Fergusson came to Philadelphia many years ago from Scotland, and was one of that circle which with Buist, Makenzie and others did so much to make the great floricultural reputation of Philadelphia, and there were few Philadelphia nursery florists better known over the whole country, in a quiet way, than Mr. Fergusson. He had been ailing more or less for several years, and was probably in or near his seventieth year, and yet his sudden death will be unexpected and painful to his many friends. He was

still actively engaged in the business with his sons at his decease.

TYPOGRAPHICAL ERRORS.—A contemporary recently took the *California Horticulturist* to task, because its pages were "marred by typographical errors." Strange to say, on one single page of its own issue it had "Parrya" Mexicana, for Larrea Mexicana; Delphinium "tricome" for D. tricorne; and Quercus "ruber," for Q. Robur. It was none of our business, perhaps,—so we took the reading of the note out in amusement.

DESCRIPTIONS AND FIGURES OF THE EUCALYPTI OF AUSTRALIA.—Dr. Muller continues his great labors. This part before us is the sixth, which makes sixty species of these remarkable trees which have now been described and illustrated.

SUMAC CULTURE IN SICILY.—By R. C. McMurtrie. Published by the United States Department of Agriculture. The growing interest in sumac culture renders this a very timely work. There are figures of our native species, and useful hints to sumac collectors.

AMERICAN GEOGRAPHY.—Nothing surprises an American more than the manner in which even intelligent European writers speak of the geography of this continent. Writing of Cratægus glandulosa, one of the best informed of European botanists tells the reader that it is a native of "the Eastern States of North America," which may mean anywhere between Labrador and the Gulf of Darien, in not the tenth part of which line is that Cratægus found. The trouble seems to be the failure to comprehend that the words "United States" are in the third person singular, as the grammarians would say. The writer should have said, "The Eastern portions of the United States," or rather Northeastern, for within these limits is this pretty hawthorn only found.

CORRECT REPORTS OF FACTS.—It is perfectly amazing to find how rarely a fact can be correctly reported. This is not merely true of the common people, but appears in the writings of the best scientific men. As the work of the writer of this is often alluded to, he has more than usual opportunity to observe this. He once reported to a learned society that most of the wild blackberry plants spread from roots,—that of the thousands of wild seeds that matured every year, the smallest possible proportion resulted in plants. In a learned German work, which is used as a standard work of reference all over the world, he is made to say that the blackberry rarely matures seed in America! Not long since he had occasion to say that the Cumberland Valley, and probably some of the larger valleys of Pennsylvania, had no timber trees on them before the white man settled on them, these valleys being annually burned by the Indians to keep them in grass for the buffalo. Straightway a learned editor sets himself to show how ridiculous it is for the State Botanist to say there was no timber "in Pennsylvania" when the white man settled there. "We know there were squirrels, and how could there be squirrels if there were no trees?" Some time since the writer also reported that in a number of cases of divided buds he had produced one in which the result was a slight change, that is to say, the tree produced the large white flowers of the Rhode Island greening, with the exact fruit of the Red Astrachan. Here before us is the report of a very estimable scientific gentleman, who says: "Mr. Meehan claims to have produced graft hybrids from the split buds of apple trees." The transition from "one hybrid" to "graft hybrids" is not much; but it is just enough to give the impression that "graft hybrids" is not an uncommon event with the "Editor of the GARDENER'S MONTHLY," whereas, one only successful result, and that a very small one, attended his experiments. Recently the *Gardener's Chronicle* called attention to the fact that in an article in a London daily paper, the editor of this magazine was referred to as "Professor Gray Meehan," and the compass plant as a "graceful tree." So it goes all round. It will not hurt people in all ranks of life to cultivate habits of strict accuracy more. Certainly science would profit by it.

PREMIUMS FOR SUBSCRIBERS.—A leading three dollar magazine has issued a confidential circular to its subscribers, that if they do not desire the premium, the subscription price will be but two dollars.

FLORISTS IN PHILADELPHIA.—According to the recent census, the amount of capital invested in the florist business is a little over $800,000. We fancy this is under rather than over the estimate, as we know of one, who alone, has $100,000 in it.

BURNED GREENHOUSES.—The magnificent series of greenhouses of Jay Gould, Esq., on the Hudson River, were destroyed by fire during the cold spell of weather on the night of the 10th of December. We have not heard the particulars.

New York Horticultural Society.—We are pleased to note that the recent reports are more in the line of usefulness, which we have often marked out—that is, that the articles for which premiums are given are described, as well as the names given, of the one who takes the premium.

Mrs. Morgan, who always has something extra in the orchid line to show, exhibits an excellent specimen of Vanda cœrulea with two magnificent spikes of blooms, fourteen flowers on each; a beautiful variety of Sophronites grandiflora, and also Phalænopsis Lobbii.

Mr. B. M. Hartshorne shows quite a curiosity—a Japanese persimmon, grown out-doors at Naversink Highlands. It is about three inches across, and of a brilliant orange color, resembling in size and shape a fair sized Acme tomato.

To be sure it is only in these two items that those at a distance can get some instructions, but we commend this in the hope that the Society will extend this line of usefulness.

Transactions of the Massachusetts Horticultural Society,—For 1879, Part II. From Robert Manning, Secretary; full of many interesting items. A prize of $60 was awarded to C. M. Hovey, for seedling camellia Anne Marie Hovey. Azaleas, roses and orchids appear very popular among members of the Society.

Among fruits, pears seem the reigning queen of fruits in Boston, though strawberries and grapes follow close after.

God's Acre Beautiful.—By Wm. Robinson. London: Published at the office of the *Garden*. 1880.

Mr. Robinson, is well known as the editor of the very useful *Garden*, and author of the "Parks and Gardens of Paris," as well as other beautiful books. This one is also beautiful, and is an attempt to make what is usually a most hideous sight, one of beauty also. For there can be nothing more repulsive than ordinary grave-yards in large cities, and we may even say than the sickening things called vaults in many a pretentious cemetery. Cemeteries themselves have improved a little over the old grave-yard plan, while the landscape burial places, like that of Spring Grove, at Cincinnati, seem to have left little more to be desired. In this work, Mr. Robinson frankly says, that if burial places in Europe were like those becoming popular in America, there would be little use at present for his book. But he believes the time will come, even in America, when burial places there will be little better than abroad, and he, therefore, commends his work to us as heartily as to his brethren of the old world.

Mr. Robinson is opposed to bodily burial, and advocates cremation; and his object in this work is to show how very beautiful a burial place might be made where handsome urns, in all sorts of styles, filled with the ashes of the dead, might be erected, and made to fall in with the most tasteful ideas of landscape gardening. To aid his point, he shows the horrors that occasionally associate themselves with the ordinary methods, and the evils that occasionally flow from them. To our mind, the horrors and evils are not as great or as extensive as Mr. Robinson seems to regard them, and are little more than the incidental black clouds that invariably follow the bright days. He illustrates his point by showing how, in the French revolution, the bodies of Royal personages, half decomposed, were ruthlessly lifted from their graves and all thrown into one pit and rotted up with lime. If they had been cremated this could not have occurred. This is true, and yet it is no worse than the guillotine, which did its fearful work on the royal necks. But this does not happen every day, and we may imagine that times would come when even the sacred ashes saved in urns would be so treated as to shock the sentiments of humanity fully as much as they suffered from the ruffianly treatment of the bodies of the French Royalists. Indeed, if we are to decide the question by mere sentiment, we take it the balance will be to the credit of the present plan. The bonds of love cannot be suddenly severed. It is hard often to believe that the beloved form before us is really dead; it seems but a sound sleep, from which the slumberer will awake again. We place the body in the coffin, and in the grave, and for weeks and months afterwards we imagine we see the sleeping body as we last saw it. It is a comfort to even dream that we see it thus. Mr. Robinson leaves the very sentiment he has evoked just here, and shows us the hard facts, the description in all its offensiveness—nothing but food for worms. But we adhere to his own test, the test of sentiment, and we see only the lost friend sleeping as we last saw him; in the cold sleep of death to be sure, but still the same dear form we always loved. Time may wean us. Time does bridge over the separation, and the grave is the best aid we can have in the journey. And it is here that cremation does

violence to this human sentiment It is bad enough to feel that death has claimed its own, but to know that even the form is all lost, that everything we so much prized has at once turned to dust and ashes, is a violence to that natural transition from sorrow to peace, which is one of the blessings of nature.

No doubt there are evils connected with burials in large cities, but these can be overcome. There is no reason why, in these days of cheap and rapid traveling, that there should be any burials in cities. They should be wholly interdicted. All cities in their charters should forbid any burials within its limits, and if at any time any rural district should be taken in, from the time of the inclusion no more should be permitted in the new acquisition.

These seem to be the views we should hold after reading Mr. Robinson's work; but the reader should take the book and judge for himself. It will be impossible to read it without, profit, whatever final views are held.

NECTAR—WHAT IT IS AND SOME OF ITS USES.—By William Trelease, Ithaca, N. Y. Published by the U. S. Department of Agriculture. If this work had no other merit, the long list of references to works treating of the subject would make it of inestimable value. In regard to the classification of plants, it is demanded of an author that he already knows what his predecessors have done; but in other departments of plant knowledge this has not been insisted on, and thus we often find the most distinguished botanists wasting time and money in publishing what has been long known before. Such labors as this of Mr. Trelease do much to remedy this evil. It is not as complete as it might be. For instance, we note Prof. Asa Gray credited with a paper on "Dimorphism in Forsythia" in 1873, but another author had a paper on this subject a couple of years or so before in the Proceedings of the Academy of Natural Sciences of Philadelphia, but which is not credited to that author in the bibliography before us. We merely mention this as a suggestion that those who may be disposed to investigate the subject may not merely start where Mr. Trelease left off, but go over again, once in a while, the whole subject from the beginning.

As to the matter of the work itself, it may be sufficient to say, that Mr. Trelease belongs to that class of naturalists who believe that every process which is carried on in a plant is for the plant's individual benefit, and by the operation of this effort "natural selection" is brought about. It is well known that there are innumerable processes going on in individual plants that are of no benefit to it whatever; but naturalists of this group make short work of these facts, by assuming, in the language of our present author, that a power "once developed and endowed may continue for generations after their necessity has ceased to exist." In this, as in so many other assumptions, there is partial truth, but it by no means covers all the ground.

PRACTICAL AZALEA CULTURE.—By Robert J. Halliday, Baltimore.—Some time since we noted the issue of an excellent little book by Mr. Halliday, on camellia culture. From the same practical pen we now have a similar work on the azalea.

FARM HOMES.—By E. H. Leland. New York, Orange Judd Company. Whoever travels through the farm districts of the United States must have noted by the frequent attempts at ornamentation that the desire to have something nice as well as profitable is widely prevalent among American farmers. That they do not always succeed or get as much for their attempts as they might, is evidently owing to a want of knowledge, and not of will. This little book is a timely effort to aid these endeavors, and will be found an excellent assistant to a comfortable home, both inside and out.

GOLDEN RULES FOR THE TREATMENT OF HORSES.—Published by the Society for the Prevention of Cruelty to Animals, 1216 Chestnut street, Philadelphia. Price 15 cents. We can cordially recommend this little book.

COLLECTION OF QUEENSLAND TIMBER.—By Mr. Walter Hill, Director Botanic Garden, Brisbane, Australia. Mr. Hill not only gives here a list of the timbers exhibited at Philadelphia, Paris and elsewhere, but describes in detail their uses in the arts, thus making the paper one of permanent value. By this list it seems there are 229 timber trees in Australia. Already there, as here, some very useful kinds are fast disappearing, and laws have to be made to protect them. In this list appears the Australian red cedar, Cedrela Toma, which seems very valuable.

HISTORY OF THE MASSACHUSETTS HORTICULTURAL SOCIETY, FROM 1829 TO 1878.—The Massachusetts Horticultural Society has good cause to be proud of its history. It was a good thought in

Mr. Hovey to suggest the writing of it. The history makes a beautiful work. It is not only the members of the Horticultural Society who may be proud of it. It is of interest to the whole horticultural community, for the history of this Society is in a great measure part of the history of American gardening.

ROWELL'S NEWSPAPER DIRECTORY, 1880.—This is a list of the newspapers and magazines of the United States, with such facts concerning them as Rowell & Co. believe will be useful to advertisers. Rowell & Co. seem to have had much trouble with the newspaper men as to the circulation of their several papers. To their inquiries they obtained about the same answer as they would get were they to ask middle-aged ladies how old they were. Of course, it is of some consequence to an advertiser to know how many papers a newspaper sells, but it is a long way from being as essential as newspaper agencies believe. We may cast a pearl before a thousand swine, and they would hardly look at it, and it would pay much better to exhibit the pearl to a dozen appreciative people. In like manner we know of magazines of five thousand or thereabouts in which it pays infinitely better to advertise than in some of fifty thousand, circulating among a class that does not buy at all. If Messrs. Rowell were to pay more attention to informing their readers about the characters of the papers as advertising mediums, and worry less about "discovering the circulation," we fancy they would make their work more valuable.

THE CALIFORNIA HORTICULTURIST.—The editor, Mr. Charles Shinn, has accepted a position on one of the San Francisco daily newspapers, and the magazine has been bought by the Pacific *Rural Press*, already well known to many of our readers as one of the most enterprising rural papers on the Pacific coast.

THE AMERICAN ENTOMOLOGIST.—This has been purchased by the *American Naturalist*, and Prof. Riley, we are glad to say, goes with it. These recent changes add very much to the strength of the *American Naturalist*, which was almost indispensable to every student of nature.

NOTES AND QUERIES.

HUMBUGS IN HORTICULTURE.—As a supplement to Mr. Henderson's paper, a prominent firm hands us the enclosed, which we publish just as received, suppressing only the names; as we are sure the fortunate proprietor of such a distinguished tree would never forgive us for connecting his name with a vulgar advertisement.

"————, ————., Ala., Nov. 8, 1880.

"————:—I wish to sell one of the most remarkable shade trees that ever grew for beauty, elegance and style; thrifty and durable; acclimated; has no equal, and superior to anything you ever saw shade the ground. I shall have a few seeds to sell, and if you can sell them for me name your commission, and I will order a shipment to be made to you; and I should be pleased if you will give me the names of reliable seedsmen in Philadelphia, Boston and New York, to whom I wish to make also consignments. Very respectfully, R. J. D.

"N. B.—The tree is Valambrosa, the most beautiful ornamental tree which ever grew. The seeds will be worth fifty cents apiece.

"Let me know if you can sell. R. J. D."

ROBBING FLORISTS.—Under date of Nov. 20th, we have the following from Mr. Fred. Hahman, Philadelphia: "A brief article of the conviction of William Cowan (spelled thus) for theft in our establishment appeared in the *Ledger* and also in the *Record* of the 18th inst., and as it may be of interest to the readers of the MONTHLY, I give particulars.

"These robberies had been carried on for a long time, to an extent of which it is impossible to judge, as nearly all florists in this part of the city suffered from these depredations; for rose buds and other cut-flowers were continually disappearing in a most mysterious manner. At last, by marking specimens, we became convinced that they were stolen during the night. We procured new locks and fastened all doors securely, but to no avail; so, as a last resource, we determined to keep watch.

"On the first night, the 2d inst., no one appeared. The following night, between 2 and 3 A. M., the man on guard detected the intruder, whom he ordered to surrender.

"The man fled, however, letting fall his plunder (500 rosebuds) and was pursued by the sentinel, who shot him in the right leg with a load of bird-shot, but the thief effected his escape.

"William Cowan was subsequently arrested and convicted for a term of eighteen months imprisonment. He had entered the greenhouses by means of a ventilating sash."

FLORIST'S REQUISITES

FOR THE

HOLIDAYS!

WE OFFER A NEW AND LARGE ASSORTMENT OF

IMMORTELLES, GRASS BOUQUETS,
NATURAL AND DRIED GRASSES,
PAMPAS GRASS PLUMES,
STRAW & WILLOW BASKETS & STANDS,
WIRE DESIGNS, BOUQUET PAPERS,

And other REQUISITES for FLORISTS, at very low rates. PRICE LIST free on application.

Our General Catalogue of "EVERYTHING FOR THE GARDEN" for 1881, will be ready early in January, and will be mailed free to all who apply for it. We also issue a MONTHLY WHOLESALE LIST of SEEDS and PLANTS, that we will send regularly to those who may desire it without charge.

PETER HENDERSON & CO.,

SEEDSMEN, MARKET GARDENERS AND FLORISTS,

No. 35 COURTLANDT STREET, NEW YORK.

AUGUST ÖLKER &

P. O. Box 899. 44 DEY STREET, New York.

SEEDS,
BULBS,
AND **FLORISTS' SUPPLIES.**

BOUQUET PAPERS, BASKETS IN ALL STYLES, IMMORTELLES, DYED MOSS, ORNAMENTAL GRASSES, TINFOIL, WIRE Etc.

☞FLOWER SEED LIST READY THIS MONTH.☜

ORCHIDS FROM MEXICO.— All those wishing to obtain information on the cost, etc., and have not yet received our circular, apply to

AUGUST RÖLKER & SONS, 44 Dey St., New York,
Agents for Droege & Co., Collectors of Orchids and Plants.

ROSES FOR FLORISTS!

A LARGE STOCK.—We keep a large stock of **Roses for Florists,** ready for shipment, at all times.

SENT SAFELY AT ANY TIME.—They can be sent safely whenever desired. Florists can replenish their stock at any time it suits best.

SIZE AND QUALITY.—Our Roses are grown in 2½ inch pots. These now off red were rooted last Spring, and having been frequently shifted, are **HEAVY, WELL MATURED PLANTS,** in **EXCELLENT CONDITION FOR IMMEDIATE USE.**

NOT FORCED.—Our Roses are not Forced, but are grown in ordinary soil, without manure or stimulants of any kind, therefore they grow off strong and healthy and require no nursing.

WE GROW THE BEST SORTS in such large supply we can usually give Florists exactly the varieties they prefer.

PRICES.

	Per 100.	Per 500.	Per 1000.
EVER-BLOOMING ROSES, ...	$ 8.00	$35.00	$70.00
CLIMBING ROSES, ...	8.00	35.00	70.00
HYBRID PERPETUAL ROSES, . .	9.00	40.00	80.00
MOSS ROSES, ...	15.00	....	.....

SPECIAL SORTS.

		Per 100.
MARIE GUILLOT, . .	Pure White Tea, Fine for Forcing, . .	$ 8.00
MAD. LAMBARD, .	New and Fine, Large Crimson Buds, . .	12.00
PERLE DES JARDINS,	The Finest New Yellow for Forcing, .	15.00
NIPHETOS, . .	Pure White, ...	10.00
DUCHESSE OF EDINBURGH,	Brilliant Crimson, ...	10.00
LA NUANCEE, . .	Fine Coppery Yellow Buds, . . .	12.00
CORNELIA COOK, . .	Creamy White, Splendid Buds, . .	10.00
GEN'L JACQUIMINOT, .	Best H. P. for Forcing, ...	8.00

NOTICE.—OUR STOCK INCLUDES A FINE ASSORTMENT OF

WHITE HYBRID PERPETUALS.

Perfection des Blanches, Mad. Francis Pettit, Perle des Blanches, Lady Emily Peel, Mad. Plantier, etc.
$10.00 PER HUNDRED.

DO[illegible]E ANT[illegible]OSES

FROM

OPEN GROUND.

Besides our large stock of **ROSES IN POTS** described above, we offer for Fall and Winter delivery an extensive assortment of **Roses on their own Roots from Open Ground,** viz.:

		Per 100.	Per [illegible]
HYBRID PERPETUAL ROSES, Strong Plants,	18 inches to 2½ feet, . .	$12.00	$[illegible]
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Rose Growers,
WEST GROVE, CHESTER CO., PA.

GREENHOUSE HEATING

AND

Ventilating Apparatus.

Base-Burning Water Heater.
Three sizes. Patented, 1873.

HITCHINGS & CO.,

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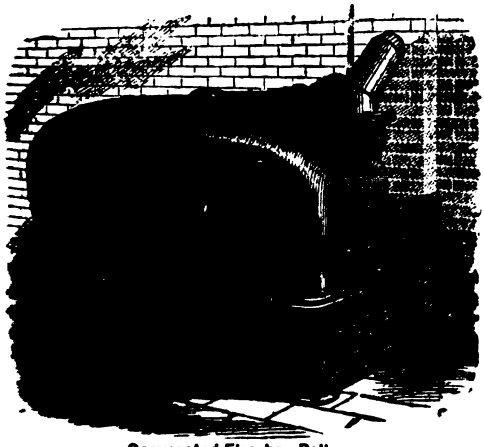

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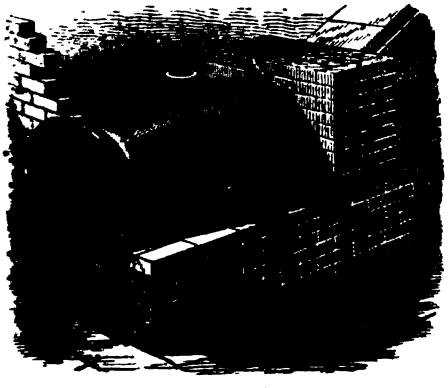

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LIFTING-RODS FOR SASHES,

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Send 6 Cents Postage for Illustrated Catalogue with References and Prices.

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We beg to call the attention of the WHOLESALE and RETAIL TRADE in FLORISTS' GOODS to our well assorted stock for the Fall season:

BOUQUET PAPERS (ITALIENS), PASTED CARTONS,

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White and all Colors.

DRIED GRASSES AND FLOWERS,

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ORNAMENTAL GRASS BOUQUETS.

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Best stock, lowest prices. Catalogues free.

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FOR HEATING

Greenhouses, Graperies, Conservatories, Propagating Houses, Forcing Pits, Public and Private Buildings, Schools, Drying Rooms, and Heating Water for Baths.

ALSO KEEP CONSTANTLY ON HAND

Expansion Tanks, Evaporating Pans, Stop Valves, Cast-Iron Pipe, Elbows, Tees, Branches, Pipe Clips and everything necessary, of the best material, for Greenhouse Heating.

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Dried Grasses and Flowers, suitable for Decorations. **Ornamental Bouquets,** for Vases.

French Green Mosses, Baskets, Wire Designs, Tin Foil. tf.17

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sep.tf **1204 Degraw Street, near Nostrand Ave., Brooklyn, N. Y.**

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This *magnificent carnation* originated with one of our neighbor florists two years ago. We have since tested it thoroughly, and found it to be the *best carnation* of its *color* in cultivation. We have grown it largely and offer it at the following low rates. Strong plants from 2 in. pots to be ready after Jan 1st, $1.50 per doz., $8 50 per hundred, $65 per thousand. A few hundred large plants in 6 and 8 in. pots at 75 cts each $6 per doz Sample flowers mailed on receipt of 10 ct. stamp. Orders booked and filled in rotation. We also offer a large stock of older standard varieties, viz. Peter Henderson, Hinsey's White (Detroit Seedling), Beauty, La Purity, Chas. Sumner, Waverly, Shell flower, and others from 2 in. pots at $5.00 per hundred, $60 per thousand.

JOHN BREITMEYER, & SONS, Detroit, Mich.

d 3

APPLE TREES, 3 years, fine, per hundred,	-		**$10.00**
PEACH " 5 to 6 ft, "	"	-	**12.00**
GLADIOLUS BULBS, "	"	-	**3.00**
TUBEROSES, first-class "	"	-	**2.50**
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DEVOTED TO HORTICULTURE, ARBORICULTURE AND RURAL AFFAIRS.

Edited by THOMAS MEEHAN.

Vol. XXIII. FEBRUARY, 1881. Number 266.

FLOWER GARDEN AND PLEASURE GROUND.

SEASONABLE HINTS.

Among the pleasures of gardening is that which aims at perfection in some one department, or in some one thing. If one has room, he may arrange for a complete specimen of landscape gardening. If not, then complete collections of some one thing, or perfect specimens of culture in certain individuals. This point of making special points of interest is much more difficult to accomplish on a small, than on a large place; but it should nevertheless never be lost sight of, that in laying out of grounds this is where the best signs of true art come in. To make every part of a place have a connected look,—that is as if it all belonged to one place, and yet to make every part of the place look as varied as possible, consistently with the oneness which it ought to have,—this is the true art. As a general rule we plant trees and shrubs without any design, except a sort of desire to have a great many varieties. We read catalogues and see accounts of things we have not, and order accordingly as we have places to put them. Still we can often combine a great variety with taste,—have quite a collection, and yet have good special features. In regard to special collections, some may try to excel in roses, some in herbaceous perennials, or some in phloxes or other smaller classes. The great point is to aim at excellence in some one thing, if we would have all the pleasure possible from a good garden.

In many parts where our magazine goes it will be necessary to bring up the preliminaries for active spring work.

Many delay pruning shrubbery until after severe weather passes, so as to see what injury may be done—but with March all should be finished—taking care not to trim severely such shrubs as flower out of last year's wood, as for instance, Wiegelia; while such as flower from the spring growth, as the Althæa, Mock Orange, &c., are benefited by cutting back vigorously. Those which flower from young wood, cut in severely to make new growth vigorous. Tea, China, Bourbon and Noisette roses are of this class. What are called annual flowering roses, as Prairie Queen and so on, require much of last year's wood to make a good show of flowers. Hence, with these, thin out weak wood, and leave all the stronger.

To make handsome, shapely specimens of shrubs, cut them now into the forms you want, and keep them so by pulling out all shoots that grow stronger than the others during the summer season.

Graft trees or shrubs where changed sorts are desirable. Any lady can graft. Cleft grafting is the easiest. Split the stock, cut the scion like a wedge, insert in the split, so that the bark of the stock and scion meets; tie a little bast bark around it, and cover with Trowbridge's grafting

wax, and all is done; very simple when it is understood, and not hard to understand.

If flowers have been standing in the ground for many years, new soil does wonders. Rich manure makes plants grow, but they do not always flower well with vigorous growth. If new soil cannot be had, a wheelbarrow of manure to about every fifty square feet will be enough. If the garden earth looks grey or yellow, rotten leaves—quite rotten leaves—will improve it. If heavy, add sand. If very sandy, add salt—about half pint to fifty square feet. If very black or rich from previous year's manurings, use a little lime, about a pint, slacked, to fifty square feet.

If the garden be full of hardy perennial flowers, do not dig it, but use a fork, and that not deeply.

Dig garden ground only when the soil is warm and dry. Do not be in a hurry, or you may get behind. When a clot of earth will crush to powder as you tread on it, it is time to dig—not before.

If perennial plants have stood three years in one place, separate the stools, replanting one-third, and give the balance to your neighbor who has none.

Box edgings lay well now. Make the ground firm and level, plant deep, with tops not more than two inches above ground.

Roll the grass well before the softness of a thaw goes away. It makes all smooth and level.

In planting trees remember our repeated advice to use the pruning knife freely.

We would again repeat a suggestion we recently made in regard to rustic summer houses. They can often be very cheaply made. In our country they should be open on all sides.

COMMUNICATIONS.

THE BEST TWENTY-FOUR MONTHLY ROSES FOR BEDDING.

BY H. B. ELLWANGER, ROCHESTER, N. Y.

In selecting roses suitable for bedding, several necessary qualifications must be considered. When we plant roses in isolated positions, we often do so having regard to some special qualities which by themselves would not make them of value for massing together.

The requisites for a good bedding rose are freedom of bloom, healthy habit of growth, good form, pure, steadfast color, fragrance, and sufficient fulness of flower.

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Homer.—Mottled salmon rose.

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Marie Van Houtte.—Pale yellow, the edges of petals very often shaded with rose, producing a unique effect. A most charming sort.

Mons Furtado.—This and Jean Pernet are the most valuable pure yellow teas.

FOR THE BEST TWELVE, ADD

Appolline (Bourbon).—Not quite so full as some of the others, but beautiful rosy pink flowers of good cupped shape. If kept cut back, it is like La France, always in bloom.

General Tartas.—Deep mottled rose; fine habit, good buds.

Madame de Vatry.—Rose, with a shade of salmon.

Madame Lombard.—Reddish salmon, but of variable shades. Very fine.

Sombreuil.—Creamy white; a superb rose out of doors.

Triomphe de Luxemburg.—Coppery rose.

FOR BEST EIGHTEEN, ADD

Bougere.—Rosy bronze.

Countess Risa du Parc.—Bronzed rose with a shade of carmine.

La Princesse Vera.—Flesh shaded with yellow, outer petals bordered with coppery rose.

Marie Ducher.—Salmon rose.

Marie Guillot.—Creamy white; a lovely rose, but unfortunately almost without fragrance.

Rubens.—Flesh shaded with pale rose.

FOR BEST TWENTY-FOUR, ADD

Catherine Mermet.—Silvery pink; the most beautiful of all the teas.

Comte de Sembui.—Salmon and rose, base of petals coppery yellow.

Hermosa (Bourbon).—This well-known sort is constantly in flower, but is not equal in quality to others named.

Jean Ducher.—Bronzed rose.

Perle des Jardins.—A beautiful straw color.

Queen of Bedders (Bourbon).—This is another variety constantly in flower, but it is of rather poor growth. Color a deep crimson, somewhat the shade of Charles Lefebvre.

Besides the varieties named, there are some which will be found very useful for their beautiful buds, if planted in a position where they are not constantly exposed to the sun's rays. Such are Agrippina, Bon Silene, Douglass, Isabella

Sprunt, Safrano, Souvenir d'un Ami. In a very sunny spot, all of these varieties open their buds very quickly and would not then be desirable.

CYPRIPEDIUM SPECTABILE.

BY D. RHIND, CANANDAIGUA, N. Y.

This is an indigenous variety found in some of the swamps around here, grows two feet in height. I was greatly delighted when I first met it growing in an amateur's garden. I called on the late Mr. Williams, an enthusiastic botanist, for directions where to find them. He cheerfully went along with me, and we found five clumps. We took them home and I potted the smallest, and put the largest into tubs two feet in diameter; this was in October, 1879. The first of them was in bloom the end of March. One tub had thirty-six flowers on at one time; some of the stems had three flowers on. They made a grand display, pleasing all who saw them. Farmers who called them the nervine plant said they were the largest flowers of such they had ever seen. When I would draw attention to Cypripedium insigne, it would hardly be noticed after seeing spectabile.

It is astonishing that this lovely orchid is so seldom met with. It is easily grown, doing well in a cool corner of the garden, and so far as I have ascertained, forces well; better still, it lasts almost as long as the Calla after being cut. The flowers were greatly admired in New York by my employer and those who saw them. Pleased with the first attempt, I have a number started this winter. Those which I grew the past season will be earlier than those newly brought in; of course all plants are easier forced after the first season. The tubs in which they are grown have holes half way down the side, which keeps them always moist, and they need less care in the summer; others have them in the usual way. Fibry peat is used in potting, and liquid manure given when growing freely. I tried to germinate seed got by crossing, but did not succeed. Any information on the subject will be gladly received through the MONTHLY.

Is Gentiana acaulis an annual or perennial? Is it easily grown? [Supposed perennial. ED. G. M.]

EDITORIAL NOTES.

NEAT LITTLE GARDENS.—In a recent ramble through the Southwest it was pleasant to note the increased attention given to pretty farmers' gardens everywhere. There is no doubt the tree peddler is in many cases an unmitigated nuisance, yet once in a while there is a compensation as there is in most evils, and one of these is that he does carry some idea of gardening into far away regions, where otherwise the voice of garden culture would never be heard.

COLONEL WILDER'S CAMELLIAS.—Colonel Wilder has placed in the new, large conservatory of Hon. Francis B. Hayes, President of Mass. H. Society, one-half of his extensive collection of plants; these to be known as the Wilder collection. Many of the plants, especially the large camellias, are twelve to fifteen feet high, and fifty or more years of age.

TRANSPLANTING THE MAGNOLIA ACUMINATA.—This and its cousin the Tulip tree, do not always move well. Many trees under such circumstances, do well if "shortened," as gardeners say. But these do not like even this, as they seem to have much difficulty in forcing new buds through the bark. But they like thinning out. If half or two-thirds of the branches be thinned out, and the remaining left without any shortening, they grow as easily as any other tree.

TREES IN CITIES.—Augusta Larned has a sympathetic letter in the *Christian Register*, on the deprivation which the poor of large cities endure in the absence of trees along the sidewalks. She thinks the efforts made to take the poor and their children, with the sick and the suffering to cool breathing places, very good, but believes that more might be done by bringing the cool health-giving trees to their doors. "The streets where the poor live are stony sepulchers in July and August" she truly says, and further that much of the foul air that now increases the death rate, would furnish wholesome food for the trees, and purify that which was left for human beings to breathe. She wonders why "flower missions" may not be developed to "tree planting missions," and why tree and plant distributors for poor people's bodies may not be as much honored as tract distributors for their souls. "It should be as good a work as sending red flannel shirts into Africa, or supplying cartloads of Bibles to the unlettered heathen," and she asks "if municipalities will not attend to keeping trees on the streets, why cannot private benevolence do the work." The suggestion is creditable to the lady's heart. There are, however, difficulties in the way of keeping up trees on the side walks,

either by private enterprise or the public bodies, but the difficulties could be easily overcome if some half dozen persons in each large town or city would take the matter seriously in hand.

Supposing most places are like Philadelphia, we will take it as a type. There is not a street in the city but was once lined with trees. This shows that every property owner desires to have trees. The time comes when public enemies destroy them. Horses are hitched to the trees, and they destroy many. Gas companies lay pipes carelessly, and the escaping gas destroys the roots. Telegraph men come along with their wires and top off trees wherever they please. Insects accumulate, and weaken the trees. The tree pruner lops off the tops, and they are short lived. The public wants the shade, but the property owner is left to battle for their protection with the whole community against him. Now this should be altered. Trees are for the common good as well as for the good of the property owner. The owner should be compelled to plant the sidewalk trees when the street is first opened for public use; but after that the municipality should have the care of them, and it should be made the duty of the Committee on Highways to look after the care and preservation of the shade trees along the city streets as well as to the paving and other matters connected with the road way. Of course there would be little inconveniences connected with such a plan. For some reason one might like to cut his tree down, or cut away or not cut away the top, but no doubt the Road Commissioners would be accommodating, and the evils and inconveniences would be far less than now.

But how can such laws be brought about? Not by the writing or the reading of this article, not by writing a letter to some daily paper, not by talking in the parlor or on the cars that such a law ought to be; but by the actual drawing up of a law to that effect, and impressing its importance on those who make the laws. If Miss Larned could interest a half dozen good practical working citizens to take an interest in the matter, and work hard until the law was passed, her "tree mission" would soon be a success everywhere.

THE HARVARD ARBORETUM —As already known to our readers, it is the design to have in Boston an Arboretum, of which that city may be proud, and which will act favorably on Arboriculture and Forestry all over the United States. Professor Sargent, the only person we believe in the United States who has ever been elected to a chair of forestry, and who has already done so much to bring the subject of forestry in a common sense way before the people of the United States, is doing his best to make this arboretum worthy of its foundation. It has been too much the habit to look on science as something for the learned and not for the common people, and hence arboretums and botanic gardens have rarely been popular with municipal authorities. In Europe where some "Royal" personage has condescended to patronize, they have been in some sense successful, though too often containing nothing that any one but a lover of an abstract fact could admire; Kew gardens in England, and Shaw's Botanic Gardens at St. Louis, are some exceptions. The former fortunately fell under the sensible direction of the Hookers, father and son, who managed to unite the common pleasure of gardening which every body liked, with that true science so few appreciate, but which is for all at the botton of all progressive education; and the St. Louis garden was fortunately owned by a wealthy gentleman whose horticultural tastes supplemented his love for botany. Boston is fortunate in having its proposed arboretum in Prof. Sargent's hands, who equally with the gentlemen we have named, fully appreciates the fact that popular garden enjoyment can be associated with sound science without in the least doing violence to it. In a visit the writer made to the prbposed arboretum last summer, it was with pleasure we listened to Prof. Sargent's views, showing how it was proposed to convert a mere school for Arboreal Science, into a cheap pleasure ground for the city.

Hoping to aid in this good work for the city of Boston, we have had the following engraving made at our own expense. It shows what the grounds would be as an arboretum only, and what it might become as a public garden if the city authorities would grant the land the city owns, and represented by the darker lines, to be used in connection with the arboretum purposes. As it is, the student of Forestry will always find profit in his pedestrian rambles from tree to tree; as it then would be it would connect with main streets, and beautiful drives as indicated on the map, could be led through it in different directions. With the whole place thrown open to picnicers and pleasure parties, nothing would be eventually more popular with the average

Boston citizen. This is the way it appears to an outsider, if such a one may be allowed to meddle with Boston's affairs. We wish Prof. Sargent every success in the accomplishment of his public spirited work. If the public lands were thrown in, the park would be one hundred and sixty-eight acres.

THE NATIONAL ARBORETUM.

PICEA AJANENSIS.—Dr. Masters has recently shown that the species named some years ago, Abies Alcoquiana is an older known kind—A.

Ajanensis. The name will therefore have to be dropped, and it will have to be now known as Picea Ajanensis. It proves very hardy in Pennsylvania. Dr. Masters says that the white under surface of the leaf is really its upper, only for a curious twist in the leaf, the under surface is brought on the top.

NOTES AND QUERIES.

GRAFTING MAPLES.—A correspondent from Clifton, Kan., writes: "Will you be so kind as to inform me whether the different kinds of maple can be grafted, root grafted and budded the same as the apple with success. Have some in my ground of soft maple and box elder that I should like to have budded or grafted with the Norway and other finer varieties."

[Maple trees or any kind of tree can be grafted, budded or root grafted, just the same "as an apple," that is to say as one variety of an apple can be grafted on a seedling or other apple, so can one variety be grafted on another of the same variety. When it comes to working one species on another species, no one will ever know what the result will be till he tries. There is no rule. We do not know that the soft or silver maple will grow on the Norway, but we fancy the Norway would grow on the silver maple, for it seems to allow almost any species to grow on it. As to the Box elder, we do not know whether it has ever been tried as a stock or not. If any one knows we should be glad of the information as regards this or any other species.

Our correspondent kindly sends a stamp for an immediate reply. It may be as well to repeat what has often been said, that the Editor of the *Gardener's Monthly* can not undertake to send replies to these questions. As Editor, he is glad to receive questions of public interest as this one is, and answer them in a public way. As a public servant it is his duty to serve the public, so long as thirty-two pages a month in the Magazine will enable him to serve them. He would be glad to do more than his duty and serve individuals as well as the public, but unfortunately the days are too short, and possibly his pen holding hand would give out if even the days were longer. We hope this explanation will be satisfactory to our friend who has really given us a very useful public question.—Ed. G. M.]

ABOUT ROSES.—Mrs. E., Melrose, Mass., writes: —"Will the writer of that invaluable article in the November MONTHLY, "The best Autumnal Roses among Hybrid Perpetuals," do the public still another srevice by giving the best twenty-four bedding Roses among the tender sorts. So many Roses which are fine under glass are utterly worthless for bedding, and so many others are poor growers and shy bloomers, that—notwithstanding every one who loves flowers at all, delights most of all in roses—very many amateurs become discouraged after two or three seasons' trial, in growing roses in beds. For instance, these splendid sorts, Niphetos and Marechal Niel, are of no value as garden Roses. Bon Silene is not full enough, neither is Safrano, and both fade to a homely color under a summer sun, in a short time. That fine Bourbon, Souvenir de la Malmaison, is not, with me at least, a free bloomer. Marie Guillot is the best white bedder I have ever tried. Agrippina, though a good bloomer, is not full enough or large enough, or sweet enough to be very satisfactory. Will Mr. Ellwanger, out of his large experience and good judgment, make us still further his debtors by giving a list of the best twenty-four Teas and Bourbons for garden culture, in the order of their merit, and including all the colors, and particularly a good, pure pink—not salmon pink—but a real, fresh rose-pink, if there are any such. And further, will he, (or some one else who is good authority,) do this so that it may be of use for this coming season's planting, which must be as early as the March number of the MONTHLY, to be available as a guide to selection." [In order to save time we sent the lady's request to Mr. Ellwanger, whose kind response we give in a previous column.—Ed. G. M.]

CHEROKEE ROSE.—A correspondent says, that one might suppose from its name it was a native species, "but the late Dr. Ward, of Athens, Georgia, informed me years since that it was imported many years ago from the Messrs. Loddiges, of London, with a collection of other roses, and he considered it of Asiatic origin." How far this is correct we cannot now say. But it must be remembered that Michaux found it so perfectly wild in Georgia, that so early in the century as 1803 when he found it, he seems to have had not even a suspicion that it had been originally an introduced plant, and supposing it to be truly American, he named it Rosa lævigata. Of course if all this sprung from a plant

imported from Messrs. Loddiges, it must have been some years—if indeed we may not say many years—before 1803, in order to have spread so much in a wild condition as to deceive Michaux. We do not know just now the date of the commencement of Loddiges' nursery. Does any one know?

For all this it may have had an Asiatic origin. There is no American species that it seems closely allied to, while it has a close relationship to the Macartney rose—Rosa bracteata, and perhaps some other Asiatic species, though so far as we know, no species exactly like it, has been found in Asia. It is well known that many remarkably close relationships between the Flora of Asia and the Flora of the Atlantic United States have been discovered, but if this rose were one of these, it would most probably have a wider distribution over our continent.

JEAN LIABAND ROSE.—Mrs. E., writes:—"In my article the name of the free-flowering crimson rose, should have been "Jean Liaband," instead of as printed. "Jean Thibaud," as I know of no variety under the latter name. I do not believe, however, that it is "Jean Liaband," as Mr. Ellwanger says that is not a free autumnal bloomer."

It is but justice to our correspondent to say that her orthography was deliberately changed by the naughty Editor. His only defence is that he could not conceive that any Frenchman would rest satisfied with such a name as Liaband. If there ever was a Frenchman of that name, the Editor must stand corrected.

GREENHOUSE AND HOUSE GARDENING.

SEASONABLE HINTS.

About this time the lamentable inquiry usually comes to the editor, "What is the matter with my window plants? some of them have done very well, but this one or that one is yellow or sickly, and looks as if it would die." We have often been to look at the weaklings or sicklings, and have generally found them suffering from too much water or too much insect. But the former is generally the trouble in window plants. If the pots are badly drained, the water does not get away, and for healthy plants the soil must dry rapidly. If the plant dries so that it needs must have water at least twice a week, it is in a healthy condition. The plant should never have water when the soil is already damp.

But what to do with these sicklings? Take them out of their old pots, wash the roots, trim the weaker branches, and put into as small a pot as the roots can be forced into. Let it remain there till by good growth it shows it has good healthy roots, then it may have more earth in a little larger pot.

Look out for a good stock of bedding plants in time by striking cuttings of such things as grow rapidly, and sowing seeds of such annuals as may be advanced to advantage.

Fuchsias may now be readily struck from the young growth of the old plants, which will make excellent blooming plants for the next summer season.

Dahlias should now be brought forward. A good plan is to shorten the extremity of the roots, put them in six-inch pots and place in a warm greenhouse. In a few weeks they will sprout, when they should be shaken out, divided with a piece of root to each sprout, and separately potted in four inch pots.

Pansies are coming now into flower. They like an airy frame, where they will not be roasted in mid-day nor exposed to drying winds, and yet have a free circulation of air and plenty of light. Planted out in such a frame, and the old shoots cut away as soon as the plant has done flowering, the plants will keep healthy over till the next season. Superior varieties can be raised from seed. Choose those with the roundish petals, best colors, and the first flowers that open, to raise seed from.

Camellias will require rather more water while growing than at other times. Just before they grow is a good time to graft. Cut down the stock, cleft graft in the crown, wax, and plunge in a bottom heat of 70°. A great many kinds may be had on one plant by the bottle system—a shoot about to grow is obtained, and attached

to the stock as in inarching, the end of the shoot being put in a small phial of water suspended beneath it. This plan does best, however, with half ripe wood in July.

Geraniums, pelargoniums, cinerarias, and Chinese Primroses, must be kept as near the glass and light as possible; they do little good in shady places. Keep off the green Aphis;—for this, on a small scale, there is nothing like hot water; on a large scale, tobacco-smoke in several successive small doses, is still the best remedy.

Auriculas, carnations, pinks, and polyanthus —the prettiest of florist's flowers—must be kept cool, just free from frost, with plenty of air, if the best results are desired.

COMMUNICATIONS.

GARDEN SCIONS.

BY CANTAB, BOSTON, MASS.

IV.

Senecio pulcher.—This loudly praised composite fell sadly into disrepute a year ago in this neighborhood, but on further trial this year has reclaimed its good reputation, and even those who were disgusted with it last year speak most favorably of it now.

Chrysanthemums.—My neighbor, Dr. Wolcott, grows lots of chrysanthemums, and this year for comparison's sake, grew some in pots and others planted out, but otherwise alongside of one another, and with equal care. The planted-out ones were lifted and potted early in September, and at flowering time as compared with those kept in pots all summer, were vastly superior,—larger, bushier, and more copiously budded. The evidence is strongly in favor of planting out.

Fuchsias in Summer.—Dr Wolcott had also a lot of fuchsias planted under the shade of a high apple tree, and all summer long they kept growing and blooming better than any I have seen in the neighborhood. Next to them ranks a lot of fuchsias planted in front of an east-facing house on Garden street, in a rather cool, shady place, and where they were freely showered from the hose on summer evenings. Fuchsia gracilis and virgata bloom freely with us in sunny exposures, and are graceful and pretty, but as fuchsias the smallness of their blossoms is a drawback to their favor. Most of the other fuchsias we have tried in sunny places are not satisfactory.

The Holy Ghost Flower (*Peristeria elata*).—This is one of the most satisfactory orchids we grow, and interesting and esteemed by everybody. It is so often mentioned in everyday literature that like the Banyan and Upas trees, children and people who know but little about plants, are by often-read descriptions familiar with its name and form. Our specimen is a goodly-sized one, in a 14-inch pot, with pseudo-bulbs as big as good Bartlett pears, and leaves four feet long, and it bears three or four flower-spikes every year. The first (those lowermost on the spike) blossoms open late in July, and others in succession, till October, and if one of the spikes be later than the others, as is usually the case, we may have Holy Ghost flowers till December.

Our plant is growing in a warm stove, in a compost of very turfy loam and sun-dried cow-manure and two-thirds of living sphagnum. We never "dry it off," but give water copiously in summer, and sparingly in winter, and keep the pot standing in a saucer filled with water all through the growing season, at which time we also give a little manure-water. The house, on account of the many kinds of plants it contains, is always moist and shady.

Seedling Orchids.—At Andover, the other day, I noticed lots of seedling orchids coming up among the pots in the greenhouses of the Misses Dove; they were tiny plants, ¼ to ½ inch high, and grew on the surface soil in the flower-pots, on the moss in the orchid baskets and among the rhizomes of Davallias, as we usually see young ferns. Mr. Meston, the gardener, explained the case: They were seedlings of Epidendrum ellipticum, an old plant, of which had ripened lots of seeds, about a year ago, and which he distributed all around among the pots, by way of experiment.

The days of large flower-beds in uniform geometrical patterns, and closely set together, are happily becoming obsolete, and surely I wish them a hasty exit. They cannot be appropriately filled and kept in high decorative condition from May till October. The amount of tender plants and labor requisite to keep such a garden in fashionable condition are enormous, and when filled the result formal and tasteless. Filling them, as our grandfathers did, with hollyhocks, dahlias, marigolds, gilliflowers, lilies and larkspurs, is inadmissible to-day. The public demands fashionable gardening, and gardeners are compelled to coincide. But fashionable

gardening need not have the terrors so often imputed to it; by a tasteful arrangement of the plants in the beds and disposition of the beds that contain the plants, we can have lovely gardens, fashionable and tasteful, and replete with roses, lilies, hardy shrubs and tender exotics.

"Pot-bound" in Plants.—If ever this evil was visible, it is so this summer. The recent exceptionally severe drouth brought it to light. Young plants that were raised in and transplanted from beds in frames, boxes or open borders, took far more readily to their new quarters, grew and survived the drouth with much less impurity than those raised in and transplanted from pots. Thrifty plants raised in pots extend their roots round and round within the pots until a ball is formed, and this ball if left unraveled, in after life remains an impediment to the luxuriance of the plant, and under adverse circumstances, such as a severe drouth at and immediately after the time of planting, renders the plant an easy prey to starvation, insects, or other likely evils.

MEXICAN ORCHIDS.

BY C. H. S., BALTIMORE, MD.

We are indebted to our sister republic for some of the finest orchids that adorn our greenhouses, and I have found the orchids of no other country that have so many good qualities. One of their greatest recommendations is that they mostly grow in a moderate temperature and a drier atmosphere than the East Indian and most of the South American and Central American species. They are most of them easy of culture, neat and compact in habit. The greater part bloom in the fall and winter months, with handsome flowers, lasting from three to six weeks. They are also comparatively cheap, and quite a nice collection could be obtained for the price often paid for a dozen East India species, such as Vandas, angræcum, Phalœnopsis and Saccolabiums. A house ranging between 45° and 60° for all the months from November 1 to April 1, will do finely, and they then begin to grow, and will require more heat, but if they never felt a heat of over 75° they would be the better for it. The list of species is quite a good one, and probably more will be added. Mexico is strong in Lælias. There is L. anceps of several varieties, L. autumnalis. L. albida, L. furfuracea, L. acuminata, with its beautiful varieties, L. erubescens and L. peduncularis. The beautiful L. majalis has proved under cultivation a shy bloomer, but this, I think, is because we do not meet its requirements. I am the more confirmed in this by an article in one of the English floral works. The writer mentioned seeing it bloom beautifully and profusely, by a person who made no pretension to any knowledge of growing orchids. We have only one Cattleya as yet from Mexico, the beautiful C. citrina. C. Skinnerii comes from Guatemala, and may also be found in the south of Mexico.

I received a letter from a collector in Mexico, who writes that he had discovered a new species of Cattleya, but gave no description. Among Oncidiums from Mexico that are desirable, we may mention O. Cavendishii, O. Barkerii, O. leucochilum, O. reflexum, and O stelligerum. These are all fine, as are also O. incurvum and O. ornithorhynchum. There are several others, O hastatum, O. unguiculatum, O. cruntum, and one or two of the same style of growth as O. cebolleta. Tricopilia tortilis and T. Galeottiana, and probably other species, are Mexican.

Mexico is also quite rich in Odontoglossums, O. cordatum, O. maculatum, O. Rossii, O. Insleyii, O. citrosmum, O. Cervantesii, O. Londesboroughianum, O. nebulosum, and several others. Epidendrums abound in this country, and though they cannot be recommended as a class, we may mention P. nemorale and E. N. majus, E. erubescens, E. vitellinum, E. brassavolæ, E. macrochilum, and E. myrianthum, as beautiful, and fit to go anywhere.

We have from Mexico, Chysis bractescens, C. Limminghii, and C. lævis. This is often sent as C. aurea, but the C. aurea comes from Venezuela, and is quite different.

Lycaste aromatica, L. Deppei and L. cruenta, are neat, compact plants, and when well grown give a great many flowers. There are also some beautiful Stanhopeas. These are not much sought after, as the blooms do not last over three days. Although the flowers are fugacious, the Stanhopeas are great favorites of mine. The flower stems come through the bottom of the basket, which should be quite open. The flowers are the most curious in the whole orchid family,—large, often six inches in diameter, and of the most delicious odor. They are mostly August and September bloomers, but at this date (December 16) I have three plants in bloom, S. oculata, S. Martiana, and one from Caraccas. All the orchids mentioned above, except the Stanhopeas, bloom between November and

April. Occasionally from some error of treatment, one or two may bloom a little sooner or later. If to these be added a few other winter-blooming species, not Mexican, quite a nice collection can be got at a moderate cost. To them I would add Lycaste Skinnerii, Calanthe vestita, in variety. C. Trianæ, Cyprepedium insigne, Dendrobium nobile, D. crassinode, D. Pierardii, and D. Wardianum, Zygopetalum crinitum and Mackayii. All these are winter bloomers, and not very costly, except D. Wardianum. Most beginners make a great mistake in buying too many species. It is far better to have three or four, or even a dozen of a good, free blooming species, than a dozen species, some of which may be good, and some poor, or only slightly different. There is often as much variety to be found in the same species as between one and another oft misnamed species. I have about a dozen and a half Lycaste Skinnerii, and no two exactly alike; and the same is true of Cattleya Mossiæ, and many other orchids.

All the Mexican Lælias I find do well with me on boards, and red cedar the best. It will last fifty years if well seasoned. Most persons use too small pieces. It is far better to take pieces 8 x 10 inches, or even larger, and secure two, three, or more plants on it. This gives more room for the roots. I believe the roots of some Cattleyas would grow two feet if they had wood to cling to, and as their roots are perennial, it is of great importance to have as much good roots as possible, as laterals will break from the old roots. Of course, orchids on wood require more attention, but being suspended, the roots are less liable to be eaten off by insects or rotted off, as in pots. They require more watering, and it is good to dip the blocks in water twice or three times a week during their growing season. Our nearness to Mexico gives us great advantages in getting orchids from there, and quite a number have been imported in the last few years. Some have been received by amateurs and dealers direct from the collectors, others have been sent to Messrs. Young & Elliott, New York, the flower auctioneers, for sale. Some fine importations have been sent (to Messrs. A. Rolker & Sons, New York), by Messrs. Droege & Co., Mexico. This firm (Droege & Co.) appear to have taken great pains in sending their orchids, and they were mostly in splendid condition They have printed wooden labels attached to the plants, giving a short description of flower, climate and height above the ocean of the home of each species, which throws considerable light on the way of handling them and time of blooming. If other collectors in South America and Central America would take the same pains, it would give us better information than we can get from books, and pay them for their trouble. There are many other desirable Mexican species. Arpophyllum, Mormodes, Cycnoches, and there is a beautiful cypripedium, C. Irapeanum, flowers large, pure yellow, lip dotted crimson, three or four flowers on a spike. I have not seen it, but from the description it must be one of the finest cypripediums.

MESEMBRIANTHEMUM ÆQUILATERALE.

BY W. F. P., SAN BERNARDINO, CAL.

During the summer of 1877, famous as the dry year, I took a trip through the extreme lower portion of our State. The hot August sun beat down most unmercifully, making the high seat of a lumber wagon no sinecure. Especially as we of the interior, when we visit the coast have to "make a burnt offering and a sacrifice" of all the skin on our noses and lips to propitiate the spirits of the vasty deep.

As we drove into the little Spanish village of San Juan Capistrano, the row of four cracked bells were being jangled for service by a grizzly Mexicano; so old and ancient was he that he appeared coeval with the ruinous church. San Juan is one of those rare bits of old Mexican California that have slumbered through the slow years unchanged since the days of the Cortinas until now they find no place for themselves in the American California of the present—an Oriental sleepy-hollow, crowded down almost into the ocean.

Here on a little level grassy spot barely out of reach of the waves, we camped, and our horses shared their provender with the village coursers and brunos, whilst we mixed our blood with some of the best (mosquito) families of the coast. Here I saw for the first time that plant with the terrible name, Mesembrianthemum æquilaterale, hanging down in a long green mass from the steep cliff, in the full glare of the mid-summer sun, beaten by the salt spray from the ocean, tugged at and threshed by the fierce north winds, it was still green and flourishing, a living cascade of green down the barren cliff; its long, stout rope like stems, hidden by large triangular leaves that fairly glisten in the scorching sunshine. Growing where every storm must drench it with salt brine, or the hot air bake the soil

around its roots, it seems must render it in cultivation an unusually hardy plant. In fact it is to a small extent in cultivation here, and I believe in Europe. As it roots as readily as all of its tribe, from cuttings, I brought home some for trial, believing that it was unusually well suited for a vase plant, from its tenacity of life, beauty, hardihood and rapid growth.

I have experimented with it now for several years, to test its qualities and to see the amount of care (alias neglect) that it will stand—for I believe that plants in vases receive the maximum of neglect, and that no plants should be planted in the exposed places usually occupied by these stone and iron monstrosities, save only those that will flourish under almost any circumstances. I have grown it in all kinds of soil from heavy clay to clean sand, even in soil strongly impregnated with salt and alkali and it grew in all, but best in a rather light rich soil; "any good garden soil will do." It seems to prefer the sunshine, the hotter the better. One poor unfortunate plant was confined like St. Simeon Stylites on top of a pillar, and compelled to subsist like him on the cold charity of the world. My St. Simeon got little or no water for months, but lived and grew, though the soil was as dry as a brick. I have convinced myself that this is one of the most useful plants for large vases known. Gracefully trailing, of rapid growth, too heavy to be beaten about and destroyed by the winds, loving the sun, a constitution like the vases—of cast iron—surviving any amount of neglect, not troubled with dead leaves or disease, standing at least 6° below freezing and 120° above. Were it only for the beauty of its habit it would be worth cultivating, but all the spring and summer it is dotted with its handsome pink fringed golden-centered flowers. As a screen for hiding the sides of a rough pine plant-box, or other unsightly object, it is most useful.

Another good quality is, that its natural inclination is to get to the edge and tumble over as soon as it possibly can; seldom or never, unless trained, covering the surface of the vase, which may be utilized for other plants. It is not a runner, but a trailer simply, and only requires to be left alone.

As it is not injured by being handled, I believe it could be used as a screen for the tables in greenhouses, &c., by being planted along the edge and allowed to trail down each side of the mass—if it was considered desirable to use the space under the tables—draw the long trailing branches back half way down, and fasten them like a curtain by a loop. I offer this for what it is worth.

Perhaps its only fault is its name, for few can trippingly repeat its sonorous title; but the astonishment its sound produces on the uninitiated is a worthy return for the labor of memorizing it.

I hope to see the time when the sound of Mesembrianthemum æquilaterale will not be so rare in the land.

[It may be remarked that our correspondent correctly spells the word "Mesembrianthemum," instead of "Mesembryanthemum," an error widely prevalent —Ed. G. M.]

EDITORIAL NOTES.

FIRES.—Recently a fire occurred in the Mayor's office in Philadelphia. On examination it was found that the floor joists were but a "few inches" above the heater. As it did not take fire last year, or the other year, and so on back, how it did so now is deemed "unaccountable." We fancy the readers of the GARDENER'S MONTHLY understand it.

THE CHRISTMAS ROSE.—This very old flower, blooming in the midst of winter without much forcing, has been very much improved in Europe of late; and its several varieties are now popular in that country for winter cut flowers. Botanically it is the Helleborus niger.

HAKEA.-The California papers are noting the introduction of these beautiful New Holland plants into California. The whole family—Proteaceæ—is so beautiful and so different to the ordinary run of plants, and withal most of the species are so easily grown, that it is a wonder they are not more often seen as specimens in tubs or large pots. They keep very easily over winter in cool houses that are secure from frost.

CARNATION "FIREBRAND."—The New York Horticultural Society reports a scarlet Carnation Firebrand, as "very fine." The superlative is no doubt agreeable to the exhibitor, but the comparative would be better for those who read about it.

We think we must keep on urging these reforms in "Committee Reports."

GARDENING ON WINDOW-SILLS.—Some time ago I saw the following simple, but very effective and inexpensive mode of making a window-sill

continually bright and pretty: Some wire netting was fastened to each side and filled with common moss; in this were sunk to the brim pots containing flowers of any desired sort or color. The moss prevented the plants from getting too dry, and with a little water they were kept in good growing condition. — *Gardening Illustrated.*

Cut Flowers.—How many females find a a means of gaining a livelihood by selling button-holes, &c., in the streets of London may be inferred from the fact that a few days since 2000 flower-girls were taken down to Southend by special train, that they might enjoy a holiday in the country. Many of these girls are connected with properly organized bodies, known as flower-girl brigades, the leading aims of which are to preserve the girls to some extent from the dangers of the London streets; to encourage them to orderly conduct, and to call in play habits of carefulness and thrift. It will have been noticed that at this season of the year red roses largely preponderate in the botton-holes sold in the public streets.

The flower business in London is no small item in the commercial world. It is said to fall short of that in New York and San Francisco; but the money invested in it in London is something enormous. It would be difficult to take a census of all engaged, directly or indirectly, in furnishing the many things required in the floral decorator's work. It is reported, that in San Francisco there are "a large number of persons engaged in cultivating, arranging, and selling flowers, and there are three firms who are engaged in nothing else but making wire designs for the florists. These designs consist of horse shoes, marriage-bells, harps, hearts, crosses, pillows, pillars, columns, monuments, locomotives, ships, horns of plenty, stars, doves, butterflies, anchors, lettering—and almost everything else that can be imagined." Our Trans-Atlantic brethren are evidently far ahead of us in extent and fertility of design in regard to their floral decorations.—*Gardener's Chronicle.*

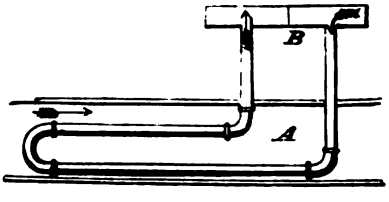
Shoots of Flowering Shrubs in Water.—At p. 467 are some remarks on this subject from the Gardener's Monthly, and it may interest some to know that flowers may be produced on branches on which the flower buds are formed by simply immersing the ends in water, without the aid of chemicals of any kind. During the early part of the present year I cut off some large branches of common lilac with flower buds on them, and set their ends in rain water tanks in the vineries and forcing houses, and they produced leaves and flowers as if they had been rooted plants. From my own observation I think they do best in moderately strong light; but if exposed to bright sunshine they flag, like bushes lifted with their roots mutilated. They, however, soon regained their erect position when the sun went down. Any one fond of experimenting on such subjects will, I think, find many suitable subjects for the purpose amongst deciduous trees and shrubs in the springtime; as when the buds are swelling up, ready to burst into leaf and flower, the organizable matter in the shoots appears capable of carrying on growth for some time without the aid of roots, if the ends of the shoot be simply immersed in water and the top kept in a genial atmosphere.—J. G. L., in *Garden.*

SCRAPS AND QUERIES.

Hot-water Propagating Tanks.—C. T. W., Fairview, Ky., says: "Will you please give your readers some information on the use of hot water tanks in the propagation of plants. What plants are thus rooted and the temperature of water; and especially, are roses successfully rooted thus?"

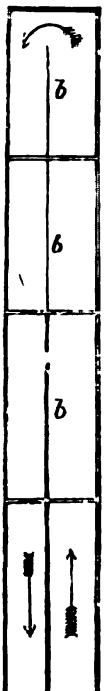
For a small propagating tank, the simplest boiler is that described in our seventh volume, as in use by Mr. Saunders, at Washington, which we reproduce here.

The furnace is placed opposite the middle of the house, and has also some peculiarities of construction, which we did not have fully explained, but our attention was attracted to the simple mode of heating the water in the tank which underlies the bed. Within a few feet of the furnace, a small piece of bent four inch pipe is inserted with two arms, one of which is the flow



and the other the return. This pipe altogether is about fifteen feet in length, nine feet of which lies in the flue; and the heat, as it passes this

pipe, is sufficient to maintain an average temperature of one hundred and ten degrees in the water, with moderate fire. If required, we understood that it could be raised to one hundred and twenty degrees with ease. The shape of the pipe is as shown in this sketch, the bent portion being in the flue, which is represented by the horizontal lines. The simplicity and cheapness of this arrangement is manifest. Any plumber can make the boiler (for such it really is), and any laborer can fix it in its place. Its cost can always be readily ascertained, being little more than the cost of so many feet of three or four-inch pipe. It can also be extended, and several tanks heated from the same fire; a side tank forty feet by two feet is in this case warmed by a small piece of two-inch pipe, let down through the top of the same flue that contains the four-inch pipe above illustrated.



[It may be added that the two parallel lines form the flue *A*, and that the furnace is built so as to closely connect with the turn in the pipes. The tank for the hot water is above (*B*). This may be made of wood, the sides having thick brown paper and white lead put between, before nailing together. This keeps the tank water-tight. The cover for the tank is best of thin slate. The shallow tank is divided in the middle, except at a small place to admit of the cooled water going to the return side, as shown in the above cut. *a* is where the water enters, and flows along *b b*, returning to the furnace at *c*.

Anything that requires heat to root, succeeds in such a tank; provided the cutting can have partial shade for a little while. Light is unfavorable to the production of roots.—Ed. G. M.]

Rose Culture.—A lady writing from Lynn, Mass., kindly says: "I am greatly interested in the Monthly, although I have only been a subscriber one year, and intend to take it as long as it is published. I have been an interested observer and grower of plants ever since I was eight years old, and received as a present, a sweet 'rose geranium' in full bloom, the handsomest plant that ever was in my childish eyes. I well remember the first scarlet verbena and white petunia that were brought to our little town, and when I was promised the first 'slips,' I felt quite rich. What an advance in verbenas and petunias since then! I think I have never —well, hardly ever—been without plants since then, with the exception of one winter in Minnesota, where I lived, or froze, and the thermometer went down to 40° below zero. The next winter our good doctor (who was as fond of plants as I, and brought his slips from Cooperstown, N. Y.) gave me a plant of variegated pink and white verbena, which I put into a tomato can for want of a pot (the latter was unheard of in that town) and it bloomed nicely. I have often laughed to myself, when I have thought how careful I was to wrap my plant in newspapers at night, and put it near the stove to keep it from freezing. How much comfort I took with just that bit of green and perhaps a solitary truss of bloom. Since then I have kept all the way from twenty-five to one hundred pots every winter, and this year have built a greenhouse, sixteen by fifty feet, and have it well stocked, and now am not quite satisfied. Like 'Oliver' I 'want more.' I have been greatly interested in articles in the Monthly, written by practical greenhouse men on different subjects. I wish some one would tell us in a plain manner how to force Gen. Jaqueminot and Souvenir de Malmaison roses. They are my special hobby just now. I could write all day of plants, but forbear, knowing editors are human."

Cattleya Skinnerii. — A subscriber asks: "Will some of the readers of the Monthly be so good as to give a few hints as to the treatment of Cattleya Skinnerii?"

Heating a Small Conservatory.—D. F. F., Leavenworth, Kan., asks: "What would you recommend for heating a small conservatory 8 x 12 in connection with a library 12 x 16 on same floor."

[For so small a conservatory, the same arrangements which heat the room could be modified to warm the conservatory also. Usually these conservatories are much exposed to the weather. They should have wooden shutters for cold nights, and all leakages of heat closely stopped. Keeping the cold out is a greater art than supplying the waste from within. A properly protected conservatory of the size named could easily be heated from the room.—Ed. G. M.]

FRUIT AND VEGETABLE GARDENING.

SEASONABLE HINTS.

The rule in pruning grape-vines, is to shorten the shoots in proportion to their strength; but, if the advice we have given in former summer hints has been attended to, there will be little disproportion in this matter, as summer pinching of the strong shoots has equalized the strength of the vine. Those who are following any particular system will, of course, prune according to the rules comprising such system. As a general rule, we can only say, excellent grapes can be had by any system of pruning; for the only object of pruning in any case is to get strong shoots to push where they may be desired, or to add to the increased vigor of the shoot, which pruning supposes will follow the act, increased size in the fruit it bears.

Manuring of grapes should be regulated by the nature of the soil. If it be damp—in most cases a bad condition for grape-growing—stable manure in great quantities means diseased vines. In dry ground, it has a beneficial effect. Many persons of small places have grapes in damp ground, or can have none. They must take care to keep the roots near the surface; never crop the ground about them to destroy the small fibres, if it can be avoided; and even good may often follow, when the vines seem failing, to carefully follow up the roots, lift near the surface, and encourage, as much as possible, those remaining there. Wood-ashes, bone-dust, and such like fertilizers are best for grape vines in low ground.

Do not plant any tree deep—cut off tap roots, and do all you can to encourage surface fibres. Surface manuring is the best way of doing this after the tree is planted. Do not allow any thing to grow vigorously around your trees the first year of planting, nor allow the soil to become hard or dry. Let trees branch low, and prune a little at transplanting.

All fruit trees like a rather dry, rich soil. On a cold clayey bottom, diseases are usually frequent.

As to whether underdraining, although a benefit in the abstract, is sufficiently so as to be a profitable operation in many cases, is a question deserving some thought before embarking largely on labor and materials, costing say a dollar against an improvement not worth more than one or two per cent. per annum, is not the most judicious expenditure. When one has a very wet piece of ground there can be no mistake about the value of underdraining it, provided one has no other ground fit for fruit trees that is not wet; but when the ground is naturally in fair condition, it would be well to go by the advice of some practical man, or at least experiment on a small scale first, before embarking largely in the improvement.

The Strawberry, where it has been covered during the winter, should be uncovered as early as possible in spring, that the warm spring suns may exert all their influence on producing an early crop. As soon as growth commences, a sowing of guano has been found to be of great benefit to the crop of fruit.

In the vegetable garden we have few hints to give to those who grow for profit. Few seldom go into the vegetable business until they have had some amateur experience, and after this they know how to make money better than we can tell them. But the amateur may be benefited by what we say, and he can go into the profitable line afterwards.

In managing the vegetable garden the highest excellence should be aimed at. This is the chief source of pleasure in a garden. If one can take no pleasure in his garden; if the watching of the beautiful processes of nature in furnishing him food, and the many lessons they offer to teach, and which he in a thousand ways can so pleasurably and profitably apply, have no charms or attractions for him, he had better give up gardening; for, assuredly, in most cases—even to ninety-nine in one hundred instances—the market gardener will bring the vegetables to his own door cheaper than he can grow them. Amateur gardening should primarily be pursued for the lessons it teaches, and the pleasure it affords. When it ceases to do this it should be abandoned.

One of the most interesting parts of a vegeta-

ble garden is a hot-bed for starting seeds early. The end of the month will be time enough for those who have not command of a large supply of stable manure, as the very low temperature we often get at the end of the month, soon absorbs all the heat the hot bed possessed. It is in any event best to put up the beds in the warmest and most sheltered spots we can find, and to keep cold winds from the manure, by covering it with branches of trees or mats; and the glass should always be covered with mats at night. Tomatoes, egg-plants, peppers and cucumbers, are the first seeds to be sown this way. Cooler frames can be got ready for cauliflower, lettuce, beets, celery and Early York cabbage, a little of which may be sown about the end of the month for the earliest crop. The cauliflower is a particularly valued vegetable, and no expense spared to get them in perfection will be regretted when one's efforts are successful.

Those who have hot-beds will now sow tomatoes, egg-plants, peppers, and other vegetables that can be forwarded by this means; and those who have not, will sow them in boxes or pans, and forward them in windows. Every garden ought to have at least a few hot-bed sash to forward early vegetables; for if they have no means of applying artificial heat to them, the sash will of itself forward some things considerably.

COMMUNICATIONS.

FRUITS IN KANSAS.

BY JAMES TRUITT, CHANUTE, KANSAS.

I have collected a few thoughts in reply to the inquiries of T. R., Chanute, Kans., of the November number. I am of the opinion that any variety of Apple will succeed here under favorable circumstances that can be grown any where. The traveling Agent has canvassed every nook and corner of the State, and has scattered an endless variety along the Neosho Valley, and they all seem to be doing well; even the old barren Yellow Bellflower is bearing profusely along the streams and upland prairie magnificent specimens, and the old condemned Newtown Pippin is producing fine solid specimens; and so is the White Pippin, Yellow Belmont, Esopus Spitzenburg, Baldwin, etc., and the Northern Spy, bears abundantly four or five years after planting; but these are not the varieties called for by the present tree planters. And we all here think we can beat the world growing Peaches, and have every kind that any body else ever had and some that were never heard tell of before. Nearly every cross road orchardist has a seedling just a few days earlier than any body else, or a little larger or a little better in quality. I have a few of these wonderful varieties on trial, and hope in a year or two to report results.

I have seen as fine specimens of the Bartlett Pear growing here as I ever saw anywhere, and have not heard of any variety failing in this vicinity that has had a fair trial. I have quite a variety in my orchard, including the following varieties: Early Harvest, Keiffer's Hybrid, Le Conte.

The Wild Goose and Chickasaw Plums are more extensively planted here than any other varieties, but I have seen some very fine specimens of the Yellow Egg, Lombard and Green Gage, and am of the opinion that I can grow as fine Plums here as anywhere.

Any of the sour Cherries will, I think, succeed here, but there are some doubts as to some of the sweet varieties.

If T. R. will call on me when he locates at Chanute, I will take pleasure in giving him all the information I possibly can.

P. S.—Has any reader of the GARDENER'S MONTHLY ever fruited the Dyehouse Cherry in Kansas? Please report in the Monthly.

THE CONSUMPTION OF VEGETABLES.

BY WALTER ELDER, PHILADELPHIA.

Few persons appreciate the progress made in the consumption of vegetables. Statistics show that while the population of Philadelphia has increased twenty per cent., the consumption of vegetables has been tenfold in the same time. There is no doubt much of the improved health which statistics now show, is due to this increased consumption of fruits and vegetables.

Not only are vegetables more eaten, but I think it will be evident to anyone who examines them now and remembers what they once were, that they are generally better in quality; and this is a great tribute to horticultural progress.

It is interesting to note how many vegetables are now used at sea as well as on land. "Jack Tar" had once to be satisfied with hard tack and pork, but now fresh vegetables form no inconsiderable part of the seaman's food.

But perhaps the most surprising part of our progress has been in the growth of vegetable

commerce. In our younger days people only had to eat the vegetables which grew in the districts about them, but now there is a steady stream of early spring vegetables northward, and summer and fall vegetables southward, and the cultivation of vegetables has become almost as much an object of interest with the transportation companies, as the growers of pork and grain. Even the local trade in vegetables is wonderful. It is worth one's while to note in the fall of the year the cabbage wagons that will accumulate in a short half an hour at one of the New Jersey ferries waiting for the boat to cross to Philadelphia. I have counted on some mornings from one hundred to over hundred and thirty at a time, and have been told that six hundred heads are on a single wagon. The cabbage harvest begins the middle of October, and continues till the middle of December in Philadelphia. These seldom bring less than $2 per 100. They are usually ordered before being cut, and cash paid on delivery so that with little loss and sure returns, it is a popular business to raise them, where the land and other circumstances favor. Those I refer to come chiefly from the counties of Burlington, Camden and Gloucester.

PLOUGH AND SPADE.

BY PETER HENDERSON.

I am afraid your readers are getting too much of this subject; but you will bear me out in saying that I did not start the controversy in your columns, and only now refer to it in defence of my position, which one, at least, of your correspondents (J. B.) very unfairly assails, when he quotes me as having said that John Bull did not know how to pulverize the soil until I told him in 1872.

Nothing is more annoying in a controversy of this kind than to be misquoted and misrepresented. What I *did* say in this matter, and which undoubtedly most readers well knew, was, that in 1872 these particular John Bulls, of the Fulham Market Gardens, that I then visited, had not yet found out that the plough and harrow were better pulverizers than the spade and rake. If I was wrong in believing which is the best method of pulverizing the soil, that is another matter; but it was and is my honest belief, as an extensive and exclusive practice of this method for thirty years well attests.

Your other correspondent, John Gunn, thinks that one reason why vegetables sell higher in London than in New York is, that rents are higher, and quotes £7, ($35) per acre as being paid for gardens supplying the London market. The price paid as rent per acre for the gardens that grow for New York markets will, I think average higher. In Hudson Co., N. J., the average is probably $40 per acre. Some of them nearest the city pay twice that, and that, too, in quite a number of cases only from year to year, as the grounds are held as too valuable to give a lease; and yet not a few of them have made good sized fortunes even when selling in a market averaging 25 per cent. less than that of London, while the price paid for labor was 50 per cent. more. Now I can tell your correspondents, who so quickly fly to the defence of John Bull at home, that by far the most successful market gardeners in this vicinity are Englishmen; but Englishmen whose necessities, on coming here, forced them to adopt common sense methods; Englishmen who were shrewd enough to take a better idea than that they had previously had from any man, whether black or white; Englishmen who were far too sensible to let their conceit stand in the way of their interests. Englishmen, also, in the vicinity of New York in the flower department of horticulture, have reason to be proud of their eminence. A majority of those managing the Rosaries at Madison, N. J., where roses are perhaps better handled than in any part of this country or Europe, are Englishmen. The proprietors of the best collection of plants for commercial purposes are all Englishmen. Our largest grower of winter flowers is an Englishman; one who, a few years ago, on his return from a European trip, was so impressed with the slow methods in use there, that he said that, had he been a younger man, he would want no better field for business than London after his ten years of American experience.

A few years ago, I received an order from a well-known nurseryman at Clapton, England, for a hundred of a general assortment of bedding plants, such a Verbenas, Petunias, &c., of varieties that he wanted to try. I packed them by wrapping the balls in paper in the usual way, and packed them in an ordinary chip basket, such as cost us about ten cents, and which weighs about one (1) pound. The packing was done with no more care than if they were to be shipped to Philadelphia. Their arrival was reported to be in perfect order, without the loss of a single plant. In ordering plants from him in

exchange, I implored him to pack in a light basket as near as possible as we had done, so as to save us expense. His basket duly arrived, containing less weight of plants than I had sent to him, and weighed, when empty, exactly twenty-two (22) pounds. It was the usual round hamper affair, made of willows nearly as thick as one's finger, for which I was charged, with the packing, four shillings sterling. Now I have no doubt my English friend made as little on the transaction as I did, though his prices were fully twice what I had charged him. He certainly made nothing on his four shillings for packing, for his graceful basket must have cost two shillings; and as every plant was mossed up and wound around with string, some of which, by actual measurement, were sixty feet in length, the other two shillings charged were certainly well earned.

I wrote, bitterly complaining, asking him why he could not pack as we had done, and save us cost of freight and cost of packing. His reply was, "It is no use attempting it. I might as well try to change the current of the Thames as to break my old packers into your Yankee ways, though I frankly acknowledge that your method is light and simple, and that the plants arrived in excellent order."

Every florist who has received plants from England knows that there is no exaggeration in these statements of how packing is done; and if these cumbersome, costly and elaborate methods are still used in packing, is it not fair to assume that many similar methods are used in culture? In plants annually received from a large London house, we find that the labels and stakes are yet made by hand, and the mysterious number is almost invariably used instead of a name, giving an immensity of extra work in invoicing; as, instead of aggregating a score of plants sold at one price, each number and name has to be written separately, instead of printing or writing 500 or 1000 at once, as is done here. Is it any wonder, then, that we have to pay a guinea for a new plant whose progeny of the same size here we gladly sell for a dollar? Fine plants of roses of all the leading kinds are now sold here for $60 per 1000, three pence sterling apiece. I have yet to see any English catalogue, where any but a few kinds they may have in surplus are offered at any such price; and when it comes to retail prices, the discrepancy is even greater; for it is safe to say that the prices named in their retail lists are at least one-third greater than in our retail lists. In the matter of new plants, the American florist has to take a far back seat. John Bull here towers over him with a vengeance. Last season the American-raised new coleus were, without doubt, more than equal to the European; yet they were sold by half a dozen growers here at an average of 75 cents each, while the London sets were offered at an average of $1.25 each, and some extra ones at the favorite half guinea.

This is a digression from the text started with, but it is nevertheless somewhat germain to the subject, whether or not the methods of commercial horticulture are not more practical here than there. I certainly believe they are, and no better proof need be adduced than the simple fact that we can and do undersell them while paying at least one-third higher for labor.

EDITORIAL NOTES.

WASHING WITH LIME WASH.—The objections some people make are very striking. We have said that a wash of lime in which a little sulphur is mixed, with some soot or dark substance to destroy the glare, is good for fruit trees, and might be of some effect against the fire blight in the pear. A correspondent of a contemporary thinks the advice good enough for a few trees, but how is he to do a large orchard? It would never pay. It would "take a small ocean of wash, and a small fire engine to do the washing." Some would think that if it paid to spend ten cents on ten trees, it would pay as well to spend a dollar on a hundred. However, we said nothing about the profit or loss of the application—but simply that it had a beneficial influence on the trees. If the correspondent finds it does not pay, that is no reason that we see why he should feel obliged to write to the papers to let people know that he intends to let his trees die first.

LAWS AGAINST WEEDS.—In a recent address at Dayton, O., Miss Carrie Brown says:—

"Some European countries and a few States, I believe in our country, have a law that should be universal, that is, one making it compulsory to keep down troublesome weeds, and providing that any one who allows them to grow, can be sued by his neighbor, or the weeds can be destroyed and expenses charged to the negligent person. Such a provision is a good one, and if not permitted to remain a dead letter, would

with a little exertion on the part of farmers and others interested, result in our having something to please the eye in these public places instead of the uninviting scenes that most of them now present."

The editor had occasion recently to mingle with a party of representative farmers of Delaware Co., Pa., noticing weeds everywhere. The question was put to one why the "the law against weeds" in that county was not enforced? "Because," was the reply, "there is no one who feels it quite safe to throw the first stone,—his own glass house might be broken." Yes! they all had weeds!

BERMUDA GRASS.—Of this, Cynodon Dactylon, a correspondent of the *Southern Enterprise* says:

"If any one has his plantation well set in Bermuda grass, then he is well prepared to make money, and can restore his lands to their original fertility, and can make more money than if planting four times the area in cotton."

BILLYEU'S LATE PEACH.—This ripened last season near Dayton, Ohio, and Mr. Anderson believes it will be a source of much profit, though ripening so late in the season. It is a freestone.

PRIMO STRAWBERRY.—This new variety ripens on the Hudson about the 1st of June, of moderate size, and productive. The sensible, moderate manner in which its claims are put forward, inclines us at once in its favor though we know nothing of it personally.

JAPAN PERSIMMON.—According to the *Southern Enterprise* the Japan persimmon grows, and has produced fruit near Savannah, Georgia.

LEVY PEACH.—In our last this was printed Leny. In writing, people should make n, v, and r, distinct. It is impossible to distinguish them in the MS. as often written. In ordinary words they can be safely guessed at, but in proper names it is dangerous In the *Flowers and Ferns of the United States*, under the head of Calochortus, the Nevada Co. of a correspondent becomes "Verada" Co. The MS. might very well pass for either.

POCKLINGTON GRAPE.—This being a direct seedling of the Concord, and having all its peculiarities of growth, ought to become as popular as its parent. We have really few first-class white grapes, and from all that we have seen, we believe this will be a valuable addition to the list.

IMPROVED BUSH BEANS.—We do not seem to pay the same attention to improving peas and beans as we do potatoes or corn,—but it is of some importance whether we grow a real bush bean, or one which spends half its vigor in endeavoring to find something to cling to. A real bush bean will generally give double the product from the same plant. Then a week of difference in coming into use, or a thick luscious "snappy" pod, is worth more than the ordinary mediocrity. Europeans pay great respect to the bush bean. The "date bean," and the "wax date," are said to be popular European kinds.

A HUGE APPLE.—The largest apple that we have yet seen, says the *Garden*, was brought to our office on the 6th inst. by Dr. Magenis. It weighs 1 lb. 8 oz, is 5½ inches in diameter, and 4½ inches high. It was grown in Cavan, in the North of Ireland, in the garden of Mr. H. P. Kennedy.

NOTES AND QUERIES.

FRUIT GROWING IN NEVADA.—A correspondent from Franktown, Nevada, sends us some splendid specimens of apples grown there which appear to be Canada Reinette; but which at least shows that this newly-settled country is likely to be as famous for its fruit as its minerals.

HARDY PEACHES.—V. B., Kingston, N Y., asks: "Would Mr. H. M. Engle, the writer of the article on Early Peaches, in the September number of the GARDENER'S MONTHLY, be so kind as to name a few varieties which would be likely to stand the climate along the North River, New York?"

PROF. BURRILL'S DISCOVERIES IN PEAR BLIGHT.—J. W., writes:—"I see you endorse Prof. Burrill's so-called discoveries as to the cause of fire blight in the pear. Now I have a firm belief that nobody knows anything about this disease more than another, and it is a waste of time to listen to anybody's say about it. Still if you know that Prof. Burrill has found out more than anybody else knows, I am sure it would render service to fruit growers to let us know what it is?"

[It would seem that if our correspondent has "firm faith" that nobody knows anything, there is little use in going further,—but it may help other readers to say that we "endorse" Prof. Burrill's discoveries, and more than endorse them, because they accord with the observations of those who have gone before him. Indeed

the chief discovery of Prof. Burrill is that he has caused the disease in healthy branches, by inoculation with the matter from diseased ones. For this practical proof of the soundness of the fungoid views he is alone deserving of credit. That the disease is caused by "pseudo fungi"—a low class without any mycelium or fibrous system" was shown clearly by Prof. Russell in our magazine for Feb., 1870,—and again in August, 1876, by Dr. J. Gibbons Hunt, who shows the change in the cells, and the fungoid ferment, resulting in "drops of viscid offensive liquid," just as Prof. Burrill has done. We should have regarded Prof. Burrill's conclusions, carefully conducted as they were, as quite worthy of "endorsement" if they stood entirely by themselves; but supported as they are by the previous experience of two eminent investigators in the lower cryptogams, we do not see how anybody can continue to say "nobody knows."—Ed. G. M.]

RASPBERRY INSECTS.—I. C. W., says:—"I send you by this mail some samples of the Highland Hardy Raspberry canes. You will notice that they have been punctured or stung by some insect, and in cutting or splitting the pieces you will find the young insect or maggot in it; we have noticed this for two seasons, and think it is the work of the June bug, the large brown hard-shelled fellow that flies around in early evenings in June; we have noticed them in great numbers in the raspberry patches at that time. And again we find the forwardest and strongest canes stung only, as the bug is gone when the later canes come along, We have found it necessary to cut out quite a portion of the strongest canes on account of their being so badly stung, as the canes are quite sure to die above the sting. Sometimes, however, they continue to grow until the fruit is formed, and then dry up, fruit and all of course. Now as this is becoming so destructive, I would ask if you know the cause and remedy, as I am not positive that the said bug does the mischief, but think so. If any further information will be of use to you will I give you more fully the particulars?"

[This is one of the insects against which we have warned our readers during the past year or two. They seem to be spreading rapidly through the country the past few years. No one should plant raspberries without examining to see that they are clear of stem-borers and root parasites. "What kinds to plant?" is a question of no sort of importance as compared with these plant enemies. No matter how good your "valuable new variety" may be, it will soon dwindle away when these insects and funguses get hold of them.—Ed. G. M.]

FRUIT CHANGES IN LOCATIONS.—A lady writing from Washoe Valley, Nevada, says:—"I believe varieties change very much in this climate; both color and quality differ from California apples. Even in the lower valleys, for instance, on the Truckee (the Alafala region). The same kinds vary and are inferior to the higher valleys where the earth is not volcanic, but black earth or vegetable formation."

LAYERING GRAPES IN VINERIES.—J. H. H., says: "What is the object of laying down vines in cold graperies? When should this be done?"

[It is desirable when a rod has been weakened below, and is still vigorous at top. It is brought down and layered, so as to throw out roots from near its vigorous portion—or its roots may be unhealthy—and it then gets newer and better roots. It is done any time before growth commences.—Ed. G. M.]

ANOTHER ORIGINAL SECKEL PEAR.—P. H., near Dover, Del., writes:—"I, too, have my "original" Seckel pear tree. It grew on a farm about two miles above Dover, and was a bearing tree during the Revolutionary war."

[It is well our correspondent did not "bet his ginger cake" on this, as our friend did, for we should have probably "come down" at once, seeing that the other cake has not yet been sent to us.—Ed. G. M.]

FORESTRY.

COMMUNICATIONS.

WALNUT TIMBER.

BY T. T. SOUTHWICK, ROCHESTER, N. Y.

I hand the following clippings to you to make such use of as may please you:

Black Walnut from Arkansas.—The towboat Ida reached New Orleans, out of the Arkansas River, on June 8, with a walnut log raft of unusual proportions. Additional interest attaches itself to this raft on account of it being part of an order for 10,000,000 feet from a Bridgeport

Conn., sewing machine factory. The growing scarcity of this desirable wood in the Eastern States, and the demand by European furniture makers has developed distant sources of supply. The raft in question had been ninety days making the trip from the forests along the White and St. Francis rivers, in Arkansas, and in that time drift, five feet deep, had accumulated beneath the logs. Of these the raft contained 2,500, 2,000 being walnut and 500 cypress. The latter are used as buoys for the heavier timber. This raft measured 400 by 208 feet, and many of the walnut logs were over six feet in diameter. They were cut by a band of 200 Canadians who are adepts at working in hard timber, and can get out 500 logs per day under favorable circumstances. From New Orleans the logs go by rail to New England, this transportation being found to be just $2 per 1,000 less than by steamship. Col. S. M. Markel, of Missouri, has this contract, and has orders for walnut logs from Liverpool parties. The raft in question contained 600,000 feet, and is among the first shipments of the kind to the East.

French Walnut Veneers.—A New York importer of veneers has just received from France a log of walnut veneer, which, for the various qualities of size, color, figure and freedom from blemishes, has rarely been equaled. The largest sheets are nearly four feet square, and the log contained about 9,000 square feet. It took the gold medal at the Paris exhibition in 1878, and its companion was sold for $5,000.

The first item naturally suggests the question, If one factory uses ten million feet of black walnut how long will the present supply hold out against the consumption of all America and much of Europe?

The second item suggests the question, If French Walnut is so valuable for veneers why is not it a good variety of walnut to plant in the rich lands of the West. Would the French thrive at the West?

FORESTS AND FORESTRY.

(From advance sheets of the Annual Report of Penna. State Board of Agriculture.)

BY THOS. MEEHAN, BOTANIST OF THE BOARD

Concluded from page 20.

But little use is made of these magnificent forests beyond fence timber and fire-wood. The streams run everywhere to the sea. No use, with rare exceptions, is made of the water power. Mills and factories are rarely seen. The effort has been to bring settlers on the land rather than encourage workshops or mining enterprises. Hence the noble timber trees are regarded as an encumbrance. Tobacco and corn for distant markets receive consideration before population of a character suited to home consumption, and hence the timber is rapidly being destroyed by the girdling process, in order that a single crop of tobacco, corn, or perhaps oats may be taken. Many hundreds of acres of dead trees of huge size were standing the past season, with the initial crops of tobacco and corn between them. In some cases saw-mills had been erected chiefly by railroad companies, and the lumber shipped by them to northern markets. A small supply may be always expected in Pennsylvania markets from Virginia, but it is not probable there ever will be much more than now. It cannot be that Virginia and other contiguous States will continue in the present indifference to home markets for the products of her soil. The splendid field she offers for manufacturing and mining cannot always continue as meagerly cultivated as now. New railroads will no doubt penetrate into these magnificent timber regions; but the demands through the growth of manufacturing, will increase the home demand, and leave the available surplus little more than now.

This view leaves Pennsylvania to look to her own area for the chief source of future supply. The amount of timber she requires to carry on her various industries is enormous. In the coal mines of the Reading Coal and Iron Company, no less than three thousand miles of solid timber is used annually. That is to say the logs set end to end would extend across the Atlantic from America to England. Most of the timber fit for this purpose, within paying distance, has been cut away, and it is already a question what shall be done next? It is not that there is not an abundance of timber in Pennsylvania. Probably one-fourth of her whole area is under forest, but it is nearly impossible to get what is needed at the points required without a heavy draft on the profits which invested capital is expected to pay.

There are forests not twenty miles from a large lumber market like Philadelphia, which would scarcely pay the expense of cutting down, because they happen to be ten or twelve miles from a railroad track or navigable water, and which would have paid a much greater profit to the owners if cut down years ago, and put into corn. But if such timber lands were near mines

or sources of heavy timber consumption, they would be profitable, indeed.

Thus we see that the blind attempts to "encourage timber culture" in some States have failed. General laws giving premiums for "planting trees" every where and any how, so that trees are planted, is a mere waste of public money. The true policy is for those large corporations or public bodies which are the most likely to need timber in their operations, to work out for supplies from their own forethought in forest culture.

It was a pleasure to your Botanist to find that the Girard Trust had already appreciated this point, and were turning their attention to reforesting the denuded hills in the vicinity of their mines, in Schuylkill county. They have adopted, however, the wise course of not going into heavy schemes until what they have done, on a comparatively small scale, shall show, by experience, the most profitable way of working. What they have done, therefore, has resulted in valuable lessons, rather than as examples of great success.

One of the great drawbacks to forest culture is the liability to forest fires. The Girard Trust has correctly noted, that the chief source of forest fires is underbrush, which gathers dead branches, besides retaining all its own dead wood, as well as keeps an immense amount of leaves from at once rotting by the lightness which the underbrush keeps about them. There is nothing more certain, that with no underbrush, there would be no serious forest fires. In view of this, the Girard Trust have kept the underbrush, in a portion of a piece of young second growth of wood, cut down. What is left there is not above a foot or two high; but the continually dying wood among this low brush, and the holding together of dry leaves, would make a serious fire if once started. Another good lesson is afforded by the superior growth of the young trees in the part comparatively cleared. They are, on an average, one-fourth larger, the writer believes, within about six years since the old wood was cut down. This is because there was more food and moisture for the young trees, with a small amount of brush between them than when the brush was heavier. A small experiment was made to change the character of the forest, by planting other kinds between the brush; but these have failed, and evidently because the strong-rooted brush near them took all the moisture, and left nothing for the struggling trees. While they are getting root hold, the others crowd them down.

The only way to make these forests produce good timber, safe from fires, would be to cut out everything but the young trees desired to remain for timber; clean them out to about six feet apart every way. Then grub out by a bull tongue or other strong ox plow everything else, running through with a drag harrow once or twice a year to keep all woody growths down but those intended to stand. No forest fires would then trouble them, and the young trees, by having all the food and all the moisture to themselves, would make as much growth in ten years as they would in twenty by the present crowded plan. The yearly harrowing would not need to be done many years, for as soon as the young trees made heads to touch each other, the summer shade and dryness from the young tree roots would cramp the vigor of all other vegetation. Whether it would pay now to do this after five or six years of strong growth, is a question. The perfect grubbing out would have to be done, in a great measure, by mattock and hand labor. It would probably cost from twenty to forty dollars per acre to do it as it should be done; but on the other hand, we may remember that if cleared, good paying timber would be there in from fifteen to twenty years, and timber for some purposes earlier; while, on the other hand, the neglected plan will give no timber worth speaking about for thirty or forty years, with the chance of its being all burned up before that time.

From the lessons afforded by the experiment of the Girard Trust there need be no hesitation in saying that in cleared land young timber trees should be set out in rows as we would set out corn, and kept clean between the rows for four or five years, just as we would keep corn clean. If a forest has been cut down, we should at once burn all the brush-wood, and then run an ox team with drag harrows through in lines about six feet wide, leaving lines of about two feet wide for the first year, for young seedlings or second growth sprouts to appear. The cross-lines, as in corn, could be harrowed the next season, after the young trees had shown themselves. Of course, in an old forest these lines could not always be straight, nor would the straightness or regularity of width be essential. The time that I have given for the forest to make good timber may seem short to those accustomed to read of the slow growth of forest

trees in Europe, or who have only seen them in the crowded fire-inviting forest; but in the way described, the trees would get, in America, the sizes indicated.

Some measure of success would naturally be due to the proper selection of trees to the soil, some doing better in one place than others; and then attention must be paid to the wants of the region. But a glance at trees already growing will afford all the information. It is clear, for instance on the hills in Schuylkill county, that the white pine and the yellow pine, (*Pinus rigida*) among evergreens and the chestnut oak, scarlet oak and black gum grow with great rapidity, and are really and truly at home. As these happen to be the trees in greatest demand for the mines, the selection question solves itself. The sweet chestnut, maples and other trees also do well in this region, should good uses be found for them there.

A question has been raised whether nature does not teach that a new kind of tree should succeed that of the old forest cut away. Sometimes we do see in nature one kind succeeding another, but not always. In the Black Mountains of North Carolina, balsam succeeds balsam, and does as well as the original forest did; and the second crop of chestnut woods, in familiar experience, is as good as the first. In some cases a new kind may find food which the original growth rejected; but a forest is not like a regular farm crop. What is taken from the soil is annually returned to it; only the wood, which is for the most part carbon taken from the atmosphere, being taken away. There is a little reason, judging both from science and observation, why the same kind of forest tree might not go on for ages in the same soil without any difference in growth being perceptible.

EDITORIAL NOTES.

LOGAN'S ELM.—The tree under which Logan the Indian warrior made his famous speech, is still standing in the farm of James T. Boggs, near camp Lewis in Ohio. The "Stockman" of Pittsburg says:

"The old elm is located one mile from Camp Lewis, six miles from Camp Charlotte (now Leistville), and two miles from the present bright and handsome little town of Kingston.

"Thanks to the thoughtfulness of Mr. Boggs, whose zeal in caring for it is most commendable, the tree is in a flourishing condition, and bids fair to stand for the admiration of many generations yet to come. The elm is now ninety-seven feet in height, twenty feet in girth, and its shade covers an area of one hundred and twenty feet in diameter. Mr. Boggs takes pleasure in showing his historical treasure to strangers, and any who call on him will spend a pleasant half-hour in listening to his ever interesting story."

LEGISLATION ON FORESTRY.—Sec. Schurz urges the enactment of a law, prescribing severe penalties for the willful negligence or careless setting on fire of public lands, and providing for the recovery of damages sustained.

These things look well on paper. Nine-tenths of those who wilfully or carelessly set fire to forests have nothing but their hides to collect damages out of, and the other tenth would be able to give the poor wretch law enough who by the law should endeavor to get damages out of them.

PROFITS OF FORESTRY.—A writer urging forest planting has the following:

"Some one writing upon this subject gives this fact: 'A man in Wisconsin planted a piece of land with black walnut, twenty-three years ago. The land flooded spring and summer and was unfit for ordinary cultivation; the trees are now from sixteen to eighteen inches in diameter and have been sold for $27,000.'"

We all want to see forest planting judiciously encouraged. We have no doubt the black walnut is a very profitable tree to plant. But we take the ground that reckless statements often do more harm than good. It would be worth knowing more about this "man in Wisconsin." Allowing twenty-five feet square for each tree, and this is more than is needed, as the trees brought $25 each, it would give $125 per acre per year. Of course interest on the original value of the land has to be charged against this, but even then the profit is so much over what corn would bring, that it is well worth having the matter in more detail. Who was he?

ENCOURAGING FORESTRY.—We read in a Western paper that "The American Association for the Advancement of Science" recognizing the importance of this movement, "appointed a committee at their last meeting in Boston to memorialize Congress and the State Legislatures

regarding the cultivation of timber, to recommend a law protecting trees planted along highways, and encouraging such plantations by exempting them from highway taxes. Also by appropriating money to Agricultural and Horticultural societies to be applied as premiums for tree planting."

This is true. It is also true that the writer of this, who is a member of the Association, objected to the report when it was introduced that such an indiscriminate recommendation was not worthy of the Association,—that there were numberless cases where roadside trees would be an injury to good roads, which were as important to local prosperity as forest trees; that there were thousands of locations now where trees were a drug, and to relieve from taxes people who planted a half dozen where millions already existed, was a waste and trifling with the public money. The speaker was cut off by the President Morgan, who ruled that the question before the body was on "the acceptance of the report as a whole," and that discus sion on its parts was not in order. The writer of this then prepared to move its reference back to the Committee, when a distinguished botanist and member of the Committee begged him to let it drop, "as," said he, "we have been seven years with this subject before us, and we cannot do any better. If the recommendation is not practical, it cannot certainly do much harm. For my part I want to get rid of any further consideration of the subject."

It seems only right to the great body of the members of this Association, that it should be understood, that this report was only adopted under the ruling of the President, and out of compliment to the members of its Committee, and not by any means that it was the unanimous sentiment of that body.

The "memorial to Congress and State Legislatures" to aid the great national question of Forestry by premiums on a few street trees, strikes us as another illustration of the mountain in labor which brought forth a mouse. If the question had been the adornment of villages, or the hygeinic condition of towns and cities, it would have been in place; but in a great national question of forestry, it seemed scarcely worth "a memorial to Congress."

NATURAL HISTORY AND SCIENCE.

COMMUNICATIONS.

FROZEN PLANTS.

BY W. F. BASSETT.

I have tried dipping in cold water and sprinkling, and generally with unfavorable results—perhaps from not managing it right—from the fact that plants out of doors will pass through a pretty severe frost unharmed when clouds or fog obscure the sun's rays in the morning. I have taken a hint, and several times have saved frozen plants in my greenhouse by building a fire of half-rotten wood, damp brush, &c., in an open vessel, so as to fill the house with smoke and steam. I think it is the generally received opinion that, like the Irishman who "was not hurt by falling, but by stopping so quick," it is not so much the freezing as the sudden thawing which destroys them. But I am inclined to think there may be some peculiar action of the sun's rays (perhaps the chemical rays), which does the mischief. I have observed that the very first rays that strike a frosted plant seem to kill it at once, while in some experiments in thawing by smoke and steam some plants have been thawed quite rapidly by the fire, and came out all right.

This is also further confirmed by a somewhat novel method adopted by a lady near here during the late cold turn. The earth in a pot of smilax was frozen quite hard at the top, and a calla was frozen so that the leaves were bent down, and as soon as she could heat a little water in the tea-kettle, it was applied to the soil around the plants in a boiling state, and the calla leaves straightened up, while the water.

was being poured on, and both plants came out comparatively uninjured.

And just here comes in appropriately a word about the "freezing of trees and plants in winter." I do not feel quite satisfied to accept the editor's theory that trees cannot freeze solid without being destroyed thereby. I would like to have him test this in a New England forest on a cold winter day by trying an axe on some of the trees, and also note the explosions often produced by the cracking of limbs in a sudden freeze—like that produced by ice in a sudden and severe freeze after a thaw. One of our citizens, who has been in the "Christmas tree" business for several years, says that the weather was so cold in Maine in the early part of December, 1880, that the balsam fir trees could not be handled without breaking in pieces, and he was obliged to give up the job. This sounds to me very much like freezing solid. Is it not just possible that trees are so protected by their bark from the direct action of the sun's rays that the frost comes out as it does from plants in leaf during a fog, as in cloudy weather?

EDELWEISS.

BY MISS M. EVELYN HUNTER.

This little Alpine plant is known to botanists as the Gnaphalium Leontopodium, but to the Swiss as Edelweiss, which signifies noble purity. Some of our own native species, as "life-everlasting," are of the same genus, a fact that I found hard to believe at first, as the one was so celebrated, and the other so little noticed by writers or florists. When, however, the Americans are carefully examined together, the resemblance is noticeable even to the uneducated eye, and while their claims to good looks are far inferior to those of the Alpine beauty, we find they have other claims when closely looked for. Most people consider the Life-everlasting, including Antennarias with Graphaliums, homely specimens of nature's handiwork, and in their wild, uncultivated state they are not attractive plants; but I think if their capabilities were developed by cultivation they might repay the florist in time by becoming uncommonly prettily marked plants,—that is if the flowers could be enlarged, and this I do not doubt. Antennaria plantaginifolia could never rival the Edelweiss, as the greater size of its velvet-like flowers, with delicate tracery of royal purple, give it an elegance of appearance that the Antennaria could never attain. This Edelweiss, that was for so many years found only on the inaccessible cliffs of the Tyrolese mountains, where the bold hunter of the chamois risked his life to gather its flower for his love, has now become civilized to such an extent, that the seeds are sold at 1s. per packet by Freeman & Freeman, Economic Seedsmen, Norwich, England.

[To the excellent hint of our correspondent we may add the encouragement that the low form of Life-everlasting—the Antennaria plantaginifolia, occasionally does become somewhat rosy, and would no doubt get into improved ways by care.—Ed. G. M.]

OBJECTS OF SEX, AND OF ODOR IN FLOWERS.

Read before the American Association for the Advancement of Science, Saratoga, August, 1879.

BY THOMAS MEEHAN,

Professor of Botany in the State Board of Agriculture of Pennsylvania, and Fellow of the Association.

Concluded from page 22.

Mr. Charles Darwin in Cross and Self-fertilization, chap. 10, page 381, says:—"We certainly owe the beauty and odor of our flowers, and the storage of a large supply of honey in them, to the existence of insects;". and Professor Asa Gray in his recently issued "Structural Botany," p. 217, follows by observing "anemophilous flowers are mostly destitute of odor, and not nectariferous;" and further, p. 218, "nor do we know that fragrance or other scent, or that nectar subserves any uses to the flowers than that of alluring insects." You see that the idea uppermost in the minds of these authors, is that some direct good to the plant must be inferred from its peculiar form, color, fragrance or secretions, and the absolute necessity of mere variation is wholly ignored. But we have color and odor even in minerals. We do not look to any special benefit to them from these possessions, but we can understand why they should possess them under the universal law of variety. Besides, odors and sweet secretions are not confined to flowers, but pervade all parts of the plant in various degrees.

The leading veins of the leaves of the Catalpa, as recently shown by Mr. John A. Ryder of the Philadelphia Academy of Natural Sciences, are furnished with glands which secrete nectar and furnish food for innumerable ants. We may

agree with Dr. Gray that this nectar is for alluring insects, but where does the good to the Catalpa come in? Odor and color abound in great variety among mushroom and fungi generally, and in Lichens and sea weeds; have these been developed to make them attractive to insects for any purposes that we can conceive of in connection with individual good? They have separate sexes; but notwithstanding their color and odor, cross-fertilization is not effected by any insect agency. If, as Mr. Darwin says, we should not have had beautiful or odoriferous flowers had insects not existed, how did these lower orders of plants come by color? We cannot understand it on any theory of natural selection, but we can understand it on the basis of the necessity for a universal variety in all things. Again bright color is not confined to flowers In tropical countries colored leaves abound, and of these the Begonias, Crotons and Dracænas of our greenhouses afford familiar examples; and, strangely enough most of these colored leaved plants belong to classes which are supposed to be anemophilous, or fertilized by the wind, and can therefore have no interest in making themselves attractive to insects.

But perhaps the most remarkable fact of all is that the statement of Dr. Gray, that anemophilous plants have flowers mostly destitute of odor is probably incorrect. Certainly there is odor in a large number of anemophilous plants. In monœcious and dicœcious classes, color or fragrance is usually present in the male flowers, and often both are there, but wanting in the female, unless in flowers with a conspicuous corolla, such as in cucurbitaceous plants. In these cases the degree of fragrance is equal. But odor to a greater or less degree exists in the Willows, Poplars, Maples, Rhus, Spinach, Indian Corn, Palms, Sweet Chestnut, and others; but always in the male and never in the female flowers. Instead of anemophilous flowers being mostly destitute of odor, I have not been able this year to find any male flowers of this class that have not odor, with the single exception of the common field Sorrel, Rumex Acetosella. The Sweet Chestnut, Castanea Americana is indeed remarkable for the prodigious amount of odor and other material which, under prevailing notions of individual good, must be regarded as absolute waste; but which comes to be looked on as the height of wisdom under the laws involved in variation. As the branch grows the axillary buds which in many plants remain dormant till spring, and then, perhaps, make a new branch, push at once and make a spike of male flowers. A bunch of these will fill a room with fragrance. There are about fifty clusters of these flowers in a spike, five flowers in a cluster, five spikes to a branch; and hence twenty-five hundred male flowers, and these all fall before the female flower with its attendant male spike is formed, and which appear at the termination of the growth instead of at the axils. There is no conceivable use for this immense crop of precocious male flowers with its attendant fragrance under any law of reproduction; but if we take into consideration the immense number of minute creatures on the earth, in the atmosphere, in water, everywhere,—and the evident design of nature that they should be fed, we may understand under the laws of variation how even a chestnut may be made to scatter this food in profusion through the atmosphere, even though not the slightest benefit to itself or to its race should follow the act. Even the views of Professor Huxley that the coal measures of England are the product of pollen which fell during 30,000 years in the carboniferous era, are explainable under the operation of this law of variation for the purpose of ultimate universal good; but under no theory of individual benefit from natural selection that I can see.

In pursuing our studies of the odors of flowers, we shall find many difficulties in believing that they were developed for the chief reason of attracting insects for the purpose of cross-fertilization. Not the least of these difficulties is the fact of many genera of showy-colored flowers existing, which may have one or two species highly odoriferous and the rest destitute of scent. The violets of Europe are of this class. Viola odorata is very sweet; the pansy less so. The rest are comparatively scentless. American Violets show the same characteristics. I am familiar with many species, but I only know of Viola primulæfolia, and Viola blanda, two nearly allied species, that would be called sweet. Has fragrance given these sweet species any advantage in the struggle for life? If so, it is, at least, not apparent. On the other hand, observation will show that the scentless flowers of this genera are just as freely visited as those which have odor. Of the many species of Reseda, I only know of one that is fragrant, the common Mignonette. In my garden, Reseda undata, wholly scentless, is as freely visited by bees as its sweet sister species. Again it is a fact that

among the sweet mignonettes, some are less fertile than others, and that the least productive have the most odor. Another remarkable case in which color and fragrance are in inverse proportion to productiveness is afforded by the genus Rubus—the Blackberry and Raspberry class. Rubus odoratus is beautiful and fragrant. How rarely it fruits is notorious. Rubus cuneatus is not high colored, but it is fragrant; not half the flowers produce anything usually, and many of those that do, give but a very few carpels. Rubus Canadensis has very showy white flowers but no odor, and its "berries" are generally more or less defective. Rubus villosus is less attractive than the last, and is more perfectly productive. But the most fertile of all the species is Rubus occidentalis. I do not know that I ever saw a flower that did not make a perfect fruit; and yet it has no odor, scarcely any petals, and these of such a green shade of white as to be actually inconspicuous. On the ground of variety in which fragrance is to play its part, and which must of necessity permeate all things, we can understand its uses; but we are lost when we attempt to explain such facts as these by any hypothesis that has for its foundation mere individual good.

May we not then logically say that sex in nature is not primarily for reproduction, but to insure variation; that questions which properly come under this law of variation have but a remote relationship to questions of natural selection, but are referable to some external power governing universal good, with which the individual governed has little but co-operation to do, and which as often tends to the destruction of individuals or races as to their preservation.

EDITORIAL NOTES

THE ACADEMY OF NATURAL SCIENCES OF PHILADELPHIA.—As stated in our last, it seemed a duty to those at a distance, who were led to believe by the *American Naturalist* that there is something very bad about the manner in which the members of the Academy of Natural Sciences manage their own property, to let them know that those editorials were usually but the "campaign documents," often seen in political circles, and meant but little more. This last editorial preceded—what was in some sort suspected—a special ticket for officers, headed by Prof. Cope for President, and Mr. J. A. Ryder for one of the Curators—Mr. Ryder being the Jessup student, whose terrible indignities in being asked to keep an eye on the museum while the person in charge went to dinner, the *Naturalist* recently held up to a weeping world.

It is but justice to those who read Professor Cope's onslaughts on the Academy, in the *Naturalist* that we repeat what we have before said, that those who really know the true situation of affairs in the Institution have no sympathy whatever with Professor Cope's efforts.

In December of 1879, Professor Cope's "ticket" was defeated, by, in the average five to one; in the election last month, seven to one—Professor Cope indeed polling only eleven votes!

As already noted, it should not be a matter that concerns the world how a local society manages its own affairs. But the editorials of the *Naturalist* lead scientific people everywhere to think differently, and it seems, therefore, but justice to the institution, that we complete the *Naturalist's* half-told tale.

The chief officers elected for the ensuing year were: President, Dr. W. S. W. Ruschenberger; Vice-Presidents, W. S. Vaux and Thomas Meehan; Recording Secretary, Dr. Ed. J. Nolan; Corresponding Secretary, Dr. George H. Horn; Treasurer, W. S. Henszey.

MARSHALL'S GARDEN.—Botanists will be sorry to learn that the garden of the first American writer on botany will soon probably be a thing of the past. The "Arbustrum Americanum, the American Grove, compiled from actual knowledge and observation, and the assistance of botanical authors," by Humphrey Marshall, appeared in 1785; this was about twelve years after he had commenced his garden at Marshallton, Penna. Many of the trees in this garden have been so celebrated as to attract distant arboriculturists. For some years, some dissensions have thrown the property into "law," with the too often result of the property finally passing out of the family hands. It is understood that the new owner is not likely to pay any respect to the associations that have made the place famous.

THE TRADESCANTS.—John Tradescant, after whom the Tradescantia was named, was gardener to King Charles. He is said to have founded the first English museum, and one of the first English botanic gardens. His house is still standing in South Lambeth, London. Part

has been torn down, and the garden is advertized to be "sold in lots to suit purchasers."

The London *Standard* concluding a sorrowful editorial on the fact, remarks that it does "not regret that the Smithsonian Institution has its home in a more sympathetic part of the world." But alas! we cannot accept the compliment without a blush; for is not the Bartram Garden in the same predicament? It will be sold "in lots to suit purchasers," and it will not be long before the famous house, which, with his own hands he built, will be torn down. It might be, that Americans who have so often gone wild with pride when the name of Bartram has been mentioned with so much honor in foreign lands, might raise a few thousand dollars to do honor to the "land of the Smithsonian," and preserve at least the house from destruction. But in view of the poor results in similar cases, we hesitate to make even the suggestion.

SELECTIVE POWER OF ROOTS.—Of the numerous problems of vegetable life which yet remain unsolved is the nature of the power the roots of plants seem to possess of taking up just those elements required to make the plant, and no other. The chemical constituents of no two plants are exactly alike—in their proportions, at least Plants of two species may grow in soil containing the same amount of lime or potash, and yet the one species may show double the quantity in its ash of the other. The only explanation our text-books give is that the feeding roots have the power of selection. But facts sometimes appear which show that this power of selection in roots cannot be taken as an illustration of "free will," but is governed by some other power in the plant. The latest proof of this is furnished by some experiments detailed in the *London Gardener's Weekly Magazine*. In the spring of 1878 he grafted some tomatoes on potato stalks. The potato stems were not allowed to make any potato leaves and the tomato was prevented from sending any roots into the soil; but the tomato bore the usual tomato fruit, while beneath the soil potato tubers were borne as in the usual way. Now the elements drawn from the earth are differently compounded in the tomato fruit and the potato apples or berries; in the tomato leaves and stems from what they are in the potato. It is not reasonable to suppose that the roots take in just what a potato root ought to take in, and that this is sent up to the tomato, which then takes what it wants and sends the rest back again; but we must conclude that the leaves have sent up to them through the potato stems to the tomato only just what they ask for, and this, of course implies that the power of selection is rather in the leaves than in the roots. A fact of additional interest in this experiment is in the production of tubers by the potato, though it had no potato leaves on the plant. It would be well worth while to pursue such investigations further, and ascertain whether the tomato leaves had any influence in changing the character of the potatoes; but this could only be tested by planting these tubers and waiting for another year.—*Independent.*

BEES AND FLOWERS.—Mr Thomas Meehan, in a note in the *Bulletin of the Torrey Botanical Club*, says: "I find that the behavior of bees is governed by circumstances. When flowers are abundant they visit those only which they prefer; at other times they examine anything which comes in their way. At the time I am writing, May 18, there is a dearth of garden flowers. Those of the early spring are gone, and the later ones are not well formed. But Columbines in many species are in bloom. The humble bee bores the ends of the nectaries and sucks the honey stored there; and the honey bee follows and sucks from the same hole what may be left, or what may be afterward generated from the honey gland. I have often watched closely to learn whether the honey bee bored for honey. Its quick motions are unfavorable to correct observation. I thought once I had caught it boring lilac flowers, but I afterward counted all the flowers that had been bored by the humble bee, and then watched the work of the honey bee on the cluster, and there were no more bored afterward than before. The Columbines (Aquilegiæ), with curved nectaries, such as A. vulgaris and A. Olympica, are very favorable for observation, as the slit is made on the upper side of the curve, and the honey bee can be easily seen following after the crumbs that have been left on the strong one's table. I have no doubt, however, that it would bore for itself if it had the power, and perhaps it sometimes does. The humble bee and the honey bee are evidently not the insects for which the Columbine had this beautifully contrived nectar cup provided to induce cross-fertilization; and what particular insect was designed to be the favored one, so that it, and no other, could turn its tongue around these twisted spurs to get at

the honey in the end, I think no student has yet discovered."—*Scientific American.*

THE PHILOSOPHY OF VARIATIONS.—We get early and late kinds of fruits, but seldom inquire why they are so. An English firm advertises a new gooseberry, and they say though it blossoms later than other kinds it becomes large enough to give green gooseberries for pies before any others. These restings of the parts of flowers, and then haste to recover lost ground are curious. It is true that they do occur.

SCIENCE IN VIRGINIA.—A society has recently been chartered in Richmond, Virginia, for the study of natural science. The charter authorizes the society to hold property to the amount of $25,000. Membership is ten dollars each. This will probably prove an eminent body.

AFRICAN SHEEP BUSH.—It flourishes in Australia where there is little rain, and is a favorite with cattle. Botanically it is called Pentzia virgata. It is a composite plant, and closely allied to the chrysanthemum.

NOTES AND QUERIES.

OLEOMARGARINE.—B. inquires: "What is the correct pronunciation of Oleomargarine? I hear it given with g soft invariably, but it comes from margarin, which has the g hard. Webster's Unabridged edition of 1875 does not contain it at all."

[It is too new a word for Webster. There is no rule that a word should either keep to its pronunciation or to the peculiar sound of its original letters through all its subsequent changes. We say Margaret, and the g is hard, but in Margery—a pet name for the same word—it is soft. In coining a new word, euphony is the guide, and oleomargarine sounds the most euphonious with the g soft, and this is probably why you invariably hear it so.—Ed. G. M.]

INSECTIVOROUS PLANTS.—B. says: "In regard Insect-eating Plants, p. 27. On the other side of this question I have to mention the fact that in collecting sarracenias, the odor of putrescent animal matter from the insects caught by the leaves is often quite an unpleasant feature"

[If B. will examine carefully he will find that in some cases there are insects in the pitcher that could hardly have walked or flown in. The writer has seen ants in the pitchers when the plants have grown on sphagnum tussocks wholly surrounded by water. He will also find in the pitchers the living larvæ of several species of insects, and he will then see that there is a possibility that though some of the insects may have been entrapped by the pitcher, there is some show of justice in Sir James Edward Smith's suggestion, now near three-quarters of a century ago, that the bulk of the insects are placed in the pitchers by predatory insects as food for their own young, and not as food for the pitcher plant. That a nauseous smell should escape from the pitcher is rather in favor of the idea that the putrescent matter is not taken up by the plant, or it would not escape in this form.—Ed. G. M.]

LITERATURE, TRAVELS AND PERSONAL NOTES.

COMMUNICATIONS.

NOTES AND QUERIES—No. 21.

BY JACQUES.

The Quinine tree is now thoroughly acclimatized and cultivated in India and results already assured. In Ceylon the experiments have been entirely successful, the price of the drug having fallen to 3s. 6d. the ounce. In a few years the exports from India will be considerable, and the superiority of quinine over opium as a means of preventing and curing disease, it is believed, will produce a revolution in the Chinese consumption of the two articles, and that the imports of opium from India to China will be re-

placed by quinine; and by this happy and simple process, a solution would be found for the dangers and uncertainties of the large revenue of India, and still more for the perplexing moral questions which cannot be separated from the large and direct share of the Indian, and therefore of the English government in the maintenance of the opium traffic with China.

The Annual Report on Kew Gardens is very interesting. There is much to interest on the subject of India Rubber, of which 4,651 tons were imported into England last year, and combined efforts are making to discover where to plant the several species of trees which produce it. How useful might our Park garden be in such efforts. New uses are found for caoutchouc, one of the most recent being for linings and panellings of railway carriages instead of teak. Dried chestnuts and the flour made from them are also reported on, as well as a scented tree sent from San Francisco, a species of Bursera from which an otto is made. The storm of August, 1879, broke 38,649 panes of glass, and the weight of broken glass was eighteen tons.

Roses.—At a recent horticultural election in France the favorite roses received the following votes: La France, 79; General Jacquiminot, 52; La Reine, 42; and Marquis Van Houtte, 45. This is probably a commercial vote, else what has become of Marechal Niel?

Almonds in California.—Mr. Hollister, of California, had a large crop of Almonds in the fall. but it is a question whether they will pay to prepare for market. The cold damp summer has made the shuck stick to the nut so tightly that it is a most tedious and expensive job to take it off. The Chinamen offered to shuck them for two and a half cents the pound, but Mr. H. thought that too high, and tried white labor, but it failed him. Lately he has been hauling the almonds to Santa Barbara to a man who agreed to take the job, but he too has fizzled out, and the Chinese want five cents. Thus all avenues to wealth are beset with difficulties.

Citrus Exhibition.—Southern California is about to forward to the East a magnificent exhibition of fruits, to include all the Citrus tribe. It will be warmly welcomed.

In Lisbon field crickets are sold in miniature cages by bird fanciers at a penny a piece. They are kept in stock by hundreds together in open tea chests. The natives like to have a "grillo" chirping in the room, and make pets of them. So says a writer in the *Entomological Monthly.*

Immense numbers of injurious insects were caught in France by the use of electric lights; they fell around the lamps in numbers so large that two of the lamps in the open air had to be removed, being covered entirely by moths of every description. We have seen large jars containing a little oil, filled by insects in a single night.

Professor Huxley in a lecture on the opening of Sir John Mason's Science College in England, said: "A pleasure loving character will have pleasure of some sort, but if you give him the choice he may prefer pleasures which do not degrade him to those that do. And this choice is offered to every man who possesses a literary or artistic culture, a never failing source of pleasures, which are neither withered by age, nor staled by custom, nor embittered in the recollection by the pangs of self-reproach."

It is stated that some samples of a new seed and also of a native Cucumber, collected in Central America, have been received at the Sydney Botanical Gardens. The former is a small black pea, edible and resembling the nardoo. The cucumbers are about the size of walnuts, and are said to make an excellent pickle.—*Nature.*

The really scientific papers of the Challengers voyages, by Sir Wyville Thomson, are now in course of publication, volume one having appeared. It is stated that the zoological specimens obtained filled four thousand and fifty-five glass vessels, and have been reported on by the scientific men of all countries; fifteen or sixteen volumes highly illustrated will be published. Sir W. Thomson considers that the most "prominent" result is the final establishment of the fact "that the distribution of living beings has no depth-limit, but that animals of all the marine invertebrate classes, and probably fishes also, exist over the whole floor of the ocean"; and that all Alpine Floræ present marked analogies with circumpolar Floræ. How remarkable this when we remember how lately it was believed, on all hands, that at great depths life was impossible.

Cemeteries.—The advantages possessed by Philadelphia in this respect.—It was left for Americans to invent the idea of the rural cemetery, where religious differences should be ignored, and which should be something more æsthetic than a mere

yard where a grave could be dug. In the American cemetery a plot can be secured in perpetuity, where husband and wife and children can be permanently placed, and to which the wounded heart may turn with a feeling of attachment beyond what can be expressed in words, and something beyond what is felt with regard to any other plot on the face of the earth. Philadelphians are, many of them, ignorant of one of the most beautiful of these "God's acres" prepared for their use. We refer to West Laurel Hill, on Belmont avenue, beyond the West Park and Centennial grounds. It is situated on a commanding plateau, which overlooks the placid Schuylkill, and is laid out and adorned with all the knowledge and taste that one of the founders of the older Laurel Hill, on the opposite bank, and long its president, could bring to its establishment. The tastes of our citizens have grown and their ideas have expanded since the original was opened, and in starting a new cemetery it has been possible to make it conform to the enlarged views of the day, so that nothing, it may be said, is wanting to satisfy the public, either in liberality of expenditure or beauty of location in this latest ornamental cemetery.—*North American.*

What is particularly interesting to the reader of the MONTHLY will be found in the extent and beauty of the planting. The trees have been made a special study by an expert.

EDITORIAL NOTES.

IMAGINATIVE GARDENERS.—It does not follow that because a gardener or a botanist has to deal with hard facts, and always be scrupulously accurate, they may not also have a vivid imagination. The late Dr. Berthold Seeman, distinguished as a botanist, in a letter to the writer just before his fatal trip to Nicaragua, spoke of the welcome income his plays were bringing him, and which would enable him to publish his "Flora of the Fejee Islands," though the English government should fail, as he then feared, in its expected aid towards its appearance. Now we have an English gardener who has produced another play, called the "Virtuous Gardener," which is having a "magnificent success" as the advertisements say, in the London theatres.

MEMORIAL TREES AT ST. LOUIS.—At the suggestion of the late Miss Nillson, a mulberry (which we believe she herself intended at some time to plant) has been set near the beautiful statue of Shakespeare in Tower Grove Park. By the kind invitation of the park controller, two specimens of Abies Nordmanniana were planted on the 19th of November on the same grounds, one by Mr. Hoole an English gentleman visiting this country, the other by the editor of this magazine.

PLEASANTRIES.—Until the writer was some years in the Editorial Chair, he never could understand how it was that even under the most righteous provocation, the prophets of old were justified in getting so mad as to tear their clothes all off their backs. But those who have been where we are know how it is. And yet there is the pleasant side to editorial life, and the few past weeks we have had a good share of it. Never in all our experience have there been so many kind encouraging words sent with renewals as this season; not for some years so few "regrets they cannot continue;" for some years never so many new names to record on the subscription books. We feel that we must be doing a useful work, to receive so many thanks. Our chief regret is that so many who began with us have now passed away for ever. It is always a pleasure to hear from the few pioneers left. Dr. S. McC., of Olney, Ill., writes: "This is my twenty-third year's subscription to the GARDENER'S MONTHLY." What a world of information in our twenty-two bound volumes! We take the indices ourselves sometimes and look at them. They form an encyclopœdia of American garden progress.

A NURSERY TITLE.—A firm in England advertise that they are "bouquetists to the Queen and the members of the Royal family." It is to be hoped their tastes are equal to the honor. The writer of this once saw a sign board in Richmond, near London, that the proprietor was "Purveyor of asses milk" to the same Royal personages

THE NEW RUGBY.—Mr. Thomas Hughes addressed the workingmen of London recently, in aid of emigration to his new colony of Rugby in Tennessee. We have seldom read such a farrago of nonsense. Amongst other things, he told them that one person had bought land there for the purpose of growing tea and coffee. It is too bad that people should be dragged from their homes and country at the beck of those who know nothing practically of what they are about. It is said that ideas rule the world. Perhaps

they do, but only when common sense goes at the back of them. If we are to have but one we would sooner have an ounce of common sense than a ton of ideas.

BURNT GREENHOUSES.—We always expect to hear of burnt greenhouses after every extra cold spell of weather, but so far only the loss of the fine range of Judge Packer, at Mauch Chunk, has been heard of.

A BOTANICAL MARRIAGE. — The California papers announce the marriage of John G. Lemmon, Botanist, and Sara A. Plummer, Botanist," and that they will "welcome their botanical and other friends at their new herbarium rooms on Thursday afternoons from one to four P. M." It is interesting to note under this advertisement there is the heading of a "new story" in the paper entitled "Rest for the Weary," and we are quite sure many a wandering botanist will be very glad to accept the rest for his weary limbs in the happy herbarium rooms so kindly placed at his disposal. We are quite sure "we" shall, if perchance passing that way.

THE HISTORY OF THE MASS. HORT. SOCIETY.—This admirable volume may be had by public libraries at the same price as furnished to members; and for a trifle more—three dollars—it will be sold to anybody. Apply to R. Manning, Secretary, Boston.

PROCEEDINGS OF THE GEORGIA STATE HORTICULTURAL SOCIETY, 1880.—From T. L. Kinsey, Sec., Savannah. This interesting volume adds to its usual value, by a catalogue of fruits adapted to the State.

THE BOTANICAL INDEX, by Mr. L. B. Case, of Richmond, Indiana, started as a trade catalogue, but it has taken such high rank as a serial by reason of its accurate and original papers on flowers, that the best magazines need not blush to receive it as a brother. It is published quarterly at the nominal price of 50 cents a year.

BOTANY OF CALIFORNIA.—The second volume of this very useful work is before us, completing the whole Botany of the State. Californians have especial reason to be thankful; for their legislature gave no assistance, and private enterprise supplied the funds, which the State ought to have advanced. It seems strange to have part of a "geological survey of a State" supplied by private means. The present volume is the work of Mr. Sereno Watson, except special chapters furnished by Engelmann, Eaton and others. It will be an enduring monument to Mr. Watson's industry and scientific eminence.

EASY LESSONS IN SANITARY SCIENCE—DRAINAGE FOR HEALTH. By Dr. Joseph Wilson, Medical Director, U. S. Navy, Philadelphia, Presly Blakiston, publisher.—There can be no doubt but the general interest in public health, and the absolute necessity of every one using his reason and judgment to guard against disease, will render this little book very welcome. The numerous facts brought together will not be without value to even the most critical. For our part we should not like to subscribe to some of the propositions, but these propositions are defective rather because the author has not investigated closely some of the parallel fields of study, than because his main proposition that underdraining is useful, is incorrect. It is scarcely correct to say as he does, that "Physiologists have not told us why the holes in a flower pot are so essential to the health of a plant." They know why, and they tell why. They know and they teach, that certain plants must have the atmosphere in the soil in order to feed properly; and that there can be no air in a water-logged soil. The author might find this explanation in any practical work on vegetable physiology, but not having searched this far, and believing without search, that physiologists have said nothing about it, he gives as "perhaps the only explanation that plants secrete a poisonous excrement, which, unless removed by percolating water, poisons the plants themselves." As we have often said in relation to other questions, it is no advantage to a good cause to be supported by a bad argument; and it is because we wish well to the cause advocated by the author with good effect in most parts of the work, that we point out its weakness here.

Much attention is given to the drainage of cities as a question of health. The great trouble in all these questions is the want of reliable facts. It is said that the water from the Delaware and the Schuylkill rivers is so polluted by the drainage into them as to breed disease from drinking the water in the cities. It ought not to be so polluted—at any rate people want to get the water as pure as they can—and yet the figures show that the average health of Philadelphia is quite as high as of the people outside who drink spring water.

For all this, purity of air and purity of water should ever be an aim with all. We can never err on the side of cleanliness or freedom from

noxious odors. There is no doubt but Dr. Wilson's work will do much to further these good ends, and it will, we trust, have a good sale.

NOTES AND QUERIES.

CUT OF A NEW FRUIT.—Some time since a correspondent sent us a cut of new fruit and some account thereof. It had some merit, and the account was moderately written. It seemed information that would be of service to the mass of readers, and we decided to use both the cut and the description. Before it could appear in our columns, it appeared in two or three weeklies, and, of course, we did not use it in our magazine. The correspondent now asks "on what principle we first accept and then refuse an offering." The principle is that we print only what we think will be information to most of our readers. It is not information if widely published before it appears with us. We have no space to merely advertise one's goods. The regular advertising columns will do this.

We are always glad to get information or drawings or cuts of new things that evidently have value; but we must be satisfied that they will really give news, and good news to the reader. That is the "principle."

AMATEURS AND COMMERCIAL MEN.—A correspondent who has kindly communicated some valuable knowledge of flowers to the GARDENER'S MONTHLY, repeatedly receives application for his "catalogue of prices." It is a poor compliment to a writer for the GARDENER'S MONTHLY to suppose that he is pecuniarily interested in the matter he is writing about. Once in a while there may be some one successful enough to "grind a little axe" under the guise of communicating information, in spite of editorial watchfulness. The honorable man uses the advertising columns when he desires to advertise. At any rate if he does not always remember this, it is a poor compliment to him to suppose that he has forgotten it.

FRAUDS.—J. B., Topeka, Kansas, writes: "Allow me in the columns of the GARDENER'S MONTHLY to notify its Western readers and all others of the amateur class in floriculture, that there is on the war path a tuberose bulb peddler who represents his bulbs to possess the virtue of giving blossoms of many colors, and from what I have heard, is carrying on a lively business amongst the amatuer and flower lovers, and especially the ladies. I first heard of him two weeks ago from a nurseryman in Atchison, this State, who inquired if he had, as yet, visited Topeka, and since that time he has been here, and from all accounts done a good business. A gentleman visiting the greenhouses to-day informed me that he swindled his wife to the amount of two dollars—the price he charges per dozen. He managed to keep clear of the florists, and tells the ladies not to let them know that they possess them. Now Mr. Editor I think it about time those lady lovers of flowers made themselves peddler-proof against such swindlers by reading such papers as the GARDENER'S MONTHLY. They have generally made their harvest and are gone to fresh fields of plunder before the professional man can get hold of him."

[We never had the slightest sympathy with any people who place themselves wholly in the confidence of a stranger. Any one who buys an apple tree from such a one, who tells him it is a Baldwin, has no one to blame but himself when ten years after it is found to be "a miserable thing that has never been grafted." If one is able to see with his own eyes what he is buying, a stranger is as good as any one else perhaps to buy from. If he is buying a peck of onions, he is not likely to have a lot of potatoes forced on him. If he is in treaty for a fresh fish, he can use his nose if the peddler is inclined to foist an unsavory article in its place. But to take the word of a total stranger as to the value of what the buyer cannot possibly know for years to come, is "buying a pig in a bag" with a vengeance. No one but lunatics do these silly things. It so happened that the "scarlet tuberose" man called on the writer of this with his wares. Very cheap they were, at $2 per doz. The vendor was told that we did want that scarlet tuberose very badly, but preferred to have it in flower in a pot, and for which we generously offered to give not $2 a dozen, but $100 for one when the time come. We insert our correspondent's note because it was kindly intended by him, but with a protest that it is a waste of valuable space to note such things. Our doctrine is that if people choose to shut their eyes and open their mouths, and see what the stranger sends them, it is nobody's business but their own; on the contrary it is meet and proper that they pay for wisdom.—Ed. G. M.]

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SPRING BULBS AND
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ORCHIDS FROM MEXICO.— All those wishing to obtain information on the cost, etc., and have not yet received our circular, apply to

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Agents for Droege & Co., Collectors of Orchids and Plants.

1881 ROSES FOR FLORISTS! 1881

We make a Special Business of Growing ROSES, and believe we offer

The Largest and Best Stock of Roses in America.

OUR NEW STOCK, ROOTED IN OCTOBER, NOW READY FOR DELIVERY.
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ONE MILLION ROSES IN 750 FINEST VARIETIES.
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NOTICE.—OUR ROSES ARE NOT FORCED, BUT ARE GROWN IN ORDINARY SOIL, WITHOUT MANURE OR ANY STIMULATING PROCESSES WHATEVER; THEREFORE THEY REQUIRE NO NURSING, BUT GROW OFF STRONG AND HEALTHY, AND COME QUICKLY INTO BLOOM; FLORISTS SAY THEY GIVE BETTER SATISFACTION THAN ANY ORHERS THEY CAN BUY.

SIZE OF PLANTS.—Our plants are the size usually grown in 3 in pots; many varieties were Rooted last Spring, and are heavy and well matured, other sorts are younger.

PRICES OF GENERAL COLLECTION.

	Per 100.	Per 500.	Per 1000.
EVER-BLOOMING ROSES, First class Assortment,	$ 8.00	$35.00	$70.00
HYBRID PERPETUAL ROSES, " "	9.00	40.00	80.00
MOSS ROSES, " "	15.00	75.00	150.00
CLIMBING ROSES, " "	8.00	35.00	70.00

Special assortments at Special Low Rates, which can be had on application.
No charge for Boxes or Packing. Safe carriage Guaranteed.

NOTE.—Persons who order Ever Blooming and Hybrid Perpetual Roses at the same time, can have one-half the order Hybrid Perpetuals without extra charge, that is, at the rate of $6 per hundred, $70 per thousand.

TERMS.—Cash with the Order—Remittance by **Postal Order, Bank Draft,** or **Registered Letter,** at our risk. We guarantee satisfaction, and add liberally to offset Expreee charges, cost of Remittance, &c.

SPECIAL SORTS.

		Per Doz.	Per 100.
INNOCENTE PIROLA, -	Splendid New White Tea, - -	$3.00	$15.00
REINE MARIE HENRIETTE,	New Crimson, style Gloire de Dijon,	3.00	15.00
MADAME WELCH, -	Magnificent Creamy Yellow Buds, -	3.00	15.00
PERLE DES JARDINS,	The Finest New Yellow, - -	2.50	12.00
MADAME LAMBARD, -	Large Crimson Buds, New, - -	2.00	10.00
NIPHETOS, - - - -	Pure White, Immense Buds, -	2.00	10.00
DUCHESSE OF EDINBURGH,	Dark Rich Crimson, - - -	2.00	10.00
CORNELIA COOK, - -	Large Creamy White Buds, - -	2.00	10.00
CATHARINE MERMET,	Deep Rose, Extra Fine, - -	2.00	10.00
ALINE SISLEY, - - -	Brilliant Crimson, - - ,	1.50	8.00
MARIE QUILLOT, - -	Snow White, Very Fine, - - -	1.50	8.00
BON SILENE, - - -	Beautiflu Bright Red Buds, - -	1.50	8.00

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Besides our large stock of **ROSES IN POTS** described above, we offer an extensive assortment of **Hybrid Perpetual, Moss and Climbing Roses,** (no Ever Bloomers,) **on their own Roots from Open Ground,** viz.:

	Per 100.	Per 1000.
HYBRID PERPETUAL ROSES, Leading Kinds Assorted, 18 in. to 2 ft., Strong,	$12.00	[illegible]
MOSS ROSES, " " " " "	15.00	[illegible]
CLIMBING ROSES, " " 2 to 4 feet, "	8.00	[illegible]

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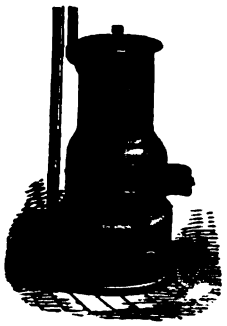

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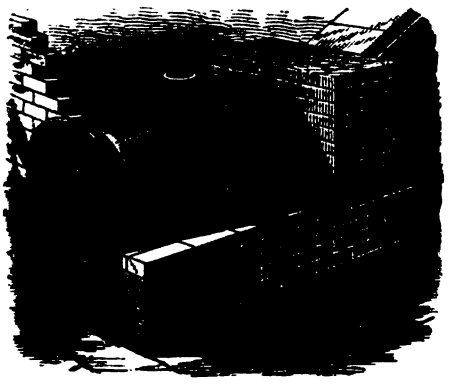

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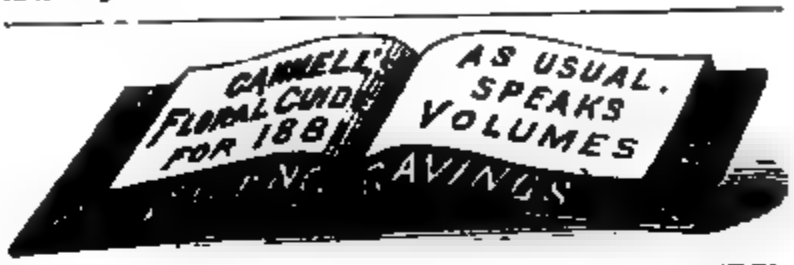

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GARDENER'S MONTHLY

AND

HORTICULTURIST.

DEVOTED TO HORTICULTURE, ARBORICULTURE AND RURAL AFFAIRS.

Edited by THOMAS MEEHAN.

Vol. XXIII. MARCH, 1881. Number 267.

FLOWER GARDEN AND PLEASURE GROUND.

SEASONABLE HINTS.

If the use of suffering in the world is to teach us to take care of ourselves, horticultural sufferers ought to be very thankful for this extra severe winter. Surely some very useful lessons should come out from all the severe experience. We do not often profit by the discoveries of science. It is now many years since Lindley showed that plants which, under ordinary circumstances, can preserve their cell liquids from freezing and the cells from rupture, die from evaporation in winter when they die at all. Then Deherain, an eminent physiologist and vegetable chemist, proved some ten years ago, that the brighter the light the greater the evaporation of plant juices. The two discoveries together tell a practical tale. Yet we have writers and papers by the hundred, telling just how many degrees this plant stood, and how many that, as if mere temperature were all that worked in the destruction of plants, and we had learned nothing at all during the past half a century. This winter might confirm Lindley, Deherain,—and we might add the teaching of the GARDENER'S MONTHLY,—if people will only stop to think. So far as the part of the world is concerned in which the writer resides, there has not been a winter within his record where the excessively low temperature was so continuous, and yet, so far as ascertained, to this date, early February, no material damage has been done at all to be compared with what has been the case when the temperature has averaged say 20° higher. And why? because the weather has been constantly cloudy, and cold, keen winds have been few. Snow makes bright light, and some things in the full snowy glare have suffered, but where trees have been tolerably thick together so as to counteract the glare somewhat, losses have been light. The great lesson from all this is to plant valuable things where they will not have great winter light, and where cold, drying winds will have no effect on them.

Another lesson has been learned of late years in the cultivation of border flowers, namely, that the reason why we do not succeed so well as we might with hardy perennial plants, and even annuals, is because the earth is too hot about them. To be successful as we might, we must carry Mr. Henderson's views of moss mulching in pot culture to open air gardening. It need not be moss, but some material to keep the earth cool is very beneficial.

Prune shrubs, roses and vines. Those which flower from young wood, cut in severely to make new growth vigorous. Tea, China, Bourbon and Noisette roses are of this class. What are called annual flowering roses, as Prairie Queen, and so

on, require much of last year's wood to make a good show of flowers. Hence, with those, thin out weak wood, and leave all the stronger.

The rule for pruning at transplanting is to cut in proportion to apparent injury to roots. If not much worse for removal, cut but little of the top away. Properly pruned, a good gardener will not have the worst case of a badly dug tree to die under his hands. In nursery, where these matters are well understood, trees "never die."

Hyacinths, Tulips, Liliums, and other hardy bulbs set out in the fall, and covered through the winter, should be occasionally examined, and when they show signs of active growth, must be uncovered; in this latitude this is not safe until towards the end of the month.

The improvements that the last few years have made in the Hollyhocks, have rendered them very popular for ornamenting shrubbery borders, to which they add very great interest, and are peculiarly appropriate. They may be transplanted quite early in the season, and flower the more freely for it. They are propagated by dividing the roots in the spring, or by seeds sown as soon as ripe in the summer. The choice kinds are increased by eyes made by cutting up the flower stems. These are struck in a gentle bottom heat.

And now, having taking a look at our flower-beds, and lawns, and trees, and shrubs, do not forget the walks and roads, which, however well kept the other parts of a garden may be, are often neglected. Nothing is so disgusting to a tasteful mind as a slovenly path.

Walks and roads are not used as much to add mere embellishment as in Europe. They are costly to make and keep in order. In American gardening they are only employed where absolutely necessary, and then turned and twisted as little as may beautify, without losing sight of their necessary duties. Old tan bark makes a cool and delightful walk under the shade of trees. It must be laid on a dry bottom, or it becomes very unpleasant in wet weather. Slag from furnaces, ground up with ashes, is the very best material for garden walks, and the color is far more agreeable in hot weather than gravel. Notwithstanding its dark color, it is not so hot, and it does not pack quite so hard as the regular road material. Sand, on the other hand, though it does not pack at all, is very hot, on account of the very hard nature of its particles.

COMMUNICATIONS.

MR. F. L. AMES' GARDEN AT NORTH EASTON, MASS.

BY WILLIAM FALCONER.

North Easton is a town on the Old Colony Railroad and about an hour's ride from Boston. Twenty-seven years ago, beyond the vegetable plots of the villagers there was but little attempt at gardening, but a change "and such a change!" has taken place since then. It is now one of the most horticultural towns in the Commonwealth and includes five pretentious greenhouse gardens, namely, Mr. Oakes Ames', Mr. Oliver Ames', Mrs. Ames', Mr. Gilmore's, and last, but more important than all the others combined, Mr. F. L Ames', and which is the one we have in view.

It is mid-winter; snow lies deeply on the ground, the ponds are frozen over, but in ten minutes' walk distance from the depot we reach the greenhouses where all is bright and gay and summer-like enough. Within the past few years the first built range of greenhouses has been partly altered, and a large and well-adapted plant stove formed out of what used to be a grapery. A roomy conservatory is contiguous, then a grapery in two compartments. Extensive greenhouses for cool and tropical orchids and ferns have been added within a year or two; there are span-roofed pits for rose-forcing, propagating and growing small plants, and a spacious apartment wherein to house somewhat tender evergreens and other plants that need slight protection in the winter. The garden contains a choice and numerous collection of orchids, pitcher plants, crotons, dracænas, palms, and other handsome exotics; indeed, it is one of the few comprehensive and progressive gardens in the country that are "right up to the times." It deals not much in the paraphernalia of the graveyard and public garden but pursues the more potent policy of intrinsic beauty of bloom or elegance of form within, and the promotion of natural but refined adornment without. Mr. Robinson is the gardener, and much credit is due to him for the proficient manner in which he executes his trust.

The conservatory is gay with seasonable flowers and festoons of Tacsonia. Stenocarpus Cunninghamii has had its stems and branches thickly fringed with blossoms. Begonia rubra, rank and stout, bears lots of pendant bunches, and some of the newer handsome-leaved Begonias are bold

and showy. In the stove, Ipomœa Horsfalliæ runs along the roof for many yards, and but a month ago its leaves were scarcely seen for flowers. Fine-leaved plants are widely represented. Palms and Screw pines reach nearly the roof, Bananas are in fruit and ripe, Anthurium marocqueiana has leaves four feet long by eighteen inches wide. A. Dechardii has large and fragrant blossoms; the spathe being porcelain-white, and the spadix, yellow; Tillandsia musaica is handsomely variegated, and several Bertolonias—jewels of the stove—as Van Houttei and Mirandæ glitter under glasses. Crotons and Dracænas are numerous and beautiful; the following are among the prettiest Crotons: Queen Victoria, Challenger, variabilis, Hamburganus, majesticus, and Earl of Derby; Dracænas—hybrida, Bausei, Bella Harris (raised by Mr. Harris, Wellesley, Mass., and one of the finest), splendens, Hendersoni, amabilis, Frederica, Baptistii, and Renardiæ.

Burbidgea nitida is one of the newest novelties. It is one of Burbidge's recent introductions from Northern Borneo, a gingerwort, distinct enough to typify a new genus, which is named in compliment to its indefatigable discoverer. B. says it "is found at a place called the 'Devil's House' * * * and grows on low wet sandstone boulders on which its rhizomes and roots form a perfect mat, and among the plants as thus elevated decayed leaves and other forest débris are blown by winds or washed by rains." They grow in rich shady forests, subjected to a heavy rainfall, high, fresh and often windy atmosphere; the plants rarely exceed a yard in height."

(To be continued.)

NATIVE PLANTS FOR CULTIVATION.

BY H. W. RAVANEL, AIKEN, S. C.

Your "Seasonable Hints" in January number as to the lack of variety in gardens and ornamental grounds are well timed, and they are suggestive of what may be accomplished towards a more cultivated taste in such matters.

There is scarcely a section of country where a good collection of native plants from the woods may not be found to help out the shrubbery. But then people don't know this generally, and it suits but few to go out and hunt for these things. They must of necessity depend in a great measure upon what dealers offer. On the other hand the nurseryman must, as a matter of prudence, confine his attention to what the purchasers want. He cannot risk the expense of any great variety of unmarketable goods. Between these two horns of the dilemma, many of our fine native plants are neglected. But there is fashion in gardening, as in everything else, and a growing interest in our native resources is already at work, and eventually demand and supply will adjust themselves.

I have at different times introduced many fine things from the woods, such as could be easily got, and they have been admired as novelties. I may mention among others, the following: The Calico bush, (Kalmia latifolia), the Flaming Azalea (A. calendulacea), the Sorrel Tree (Oxydendron arboreum), Clethra tomentosa, Robinia hispida, Yucca filamentosa, Pinus inops, Callicarpa Americana &c. Among climbers, our native Lonicera sempervirens, with its scarlet flowers, is quite attractive, and the smilax with evergreen leaves, gives a rich foliage through the winter.

RAISING NEW ROSES BY ARTIFICIAL FECUNDATION.

BY H. B ELLWANGER, ROCHESTER, N. Y.

The present seems to me a suitable time for directing the attention of all who are interested in the production of new varieties of plants, to the possibilities open in the way of raising new roses. It seems very strange that with the superabundant energy which is inborn in the American people, we have done so little towards producing novelties in roses. Daniel Ball, of New York, is the only American who ever raised varieties of Hybrid Perpetuals of any value. Outside the Noisette and Prairie families of roses, America has given almost nothing of merit; what there are, James Sprunt, Isabella Sprunt, Harrison's Yellow, Mme. Ball, Cornelia Cook, are soon told off. Why this stagnation? It cannot be because it is thought there is no profit in the production of seedling roses, for the success of the growers in France is evidence to the contrary.

This state of things should no longer continue; let us up and be doing! There is no reason why we cannot raise just as good seedling roses as are grown elsewhere, and perhaps better, with the application of those traits which characterize American inventors, for we have a greater diversity of climate than is found in any other country, and, as a people, are quicker to grasp ideas of improvement than others. We may therefore be assured that there is no good reason why, within a few years, we should not send out

just as fine roses each spring or autumn as now come from England and France.

Most of the new roses are from natural fertilization. Few growers resort to artificial fecundation, first, because they have succeeded reasonably well up to the present time, by merely accepting what crosses nature has chosen to give; and second, because of the additional trouble which resorting to manual fecundation would cause. The experienced in such matters, generally coincide in the belief that we are less likely to obtain flowers of good form and finish from crosses made artificially, than from those which come by natural means, *e. g.*, by insects or wind distributing the pollen. I do not subscribe to this opinion. I cannot but believe that we are even more certain of obtaining flowers of high finish from artificial fertilization, than we are from natural, if we but observe natural means, and study carefully the laws of cause and effect. The following varieties of roses are all claimed as the results of artificial impregnation:

Variety.	*Class.*	*Parentage.*	*Raiser.*
America,	Noisette,	Salfaterre × Safrano,	T. G. Ward.
Captain Christy,	Hy. Tea,	Victor Verdier × Safrano,	Lachaune.
Gem of Prairies,	Prairie or Hy. Climber,	Queen of Prairies × Mme. Laffay,	Burgess.
Harrison Weir,	H. P.,	Chas. Lefebvre × Xavier Olibo,	Turner.
John Hopper,	H. P.,	Jules Margottin × Mme. Vidot,	Ward.
Le Pactole,	Tea,	Lamarque × Yellow Tea,	Mme. Pean
Marie Van Houtte,	Tea,	Mme. de Tartas × Mme. Falcot,	Mme. Ducher.
Mme. Welche,	Tea,	Devoniensis × Souv. d'un Ami,	Mme. Ducher.
Mrs. Harry Turner,	H. P.,	Chas. Lefebvre × Alfred de Rougenont,	Laxton.
Paul Neyron,	H. P.,	Victor Verdier × Anne de Diesbach,	Levet.
Princess Mary of Cambridge,	H. P.,	Duchess of Sutherland × J. Margottin,	Granger.
Reine Marie Henriette,	Hy. Tea.,	Mme. Berard × Gen. Jacqueminot,	Levet.

Besides these there are the hybrid teas raised by Mr. Bennett, which, though untested as to their value outside, have proved of great worth for forcing under glass. I do not recall any other varieties that have been produced by manual fecundation, but those given will, I think, show that we may safely expect roses of the highest quality originated in this way. But, granted that we are less sure of high finish, all practioners admit, that by means of artificial fertilization, we are far more certain of attaining a produce distinctive in character; this being so, we have a very strong incentive that should encourage our efforts in this line. Last winter, in the months of February and March, I made some experiments in hybridizing, and obtained seed from the following crosses:

1. Charles Lefebvre × Emily Laxton; 2. Charles Lefebvre × Safrano; 3. Safrano × Charles Lefebvre; 4. Boa Silene × General Jacqueminot; 5. General Jacq't × Solfaterre; 6. General Jacqueminot × Madame Bravy; 7. General Jacqueminot × Isabella Sprunt; 8. Gen. Jacqueminot × Abricot; 9. Gem of Prairies × General Jacqueminot; 10. Marie Van Houtte × Francois Michelon; 11. Dupetit Thouras × Bon Silene; 12. Aimee Vibert Scandens × Bon Silene; 13. Louis Odier × Lamarque; 14. Climbing Victor Verdier × Mme. Bravy; 15. Marie Baumann × Safrano.

The seed from No. 12 is small and poor, it is doubtful whether any of it will germinate. That from Nos. 1, 9, 11 and 13 is small but mostly good; all the rest is fine, healthy looking seed, especially that from Nos. 2, 3, 5, 6, 15. Besides the varieties operated on as named above, I attempted to fertilize others, but, though operating on perfect flowers, was not successful; among them were La France, Anne de Diesbach, Glorie de Rosomanes and the Prairies Baltimore Belle and Anna Maria. During the winter months we have very few sunny days in Rochester, and as sunlight is an important item in hybridizing, my failure with the varieties last named can be partly attributed to this cause; besides, the Prarie roses, and also La France, are very difficult subjects with which to work, as none of them bear pollen to speak of, and therefore are useless as male parents; the pistils instead of being isolated or apart, as in the majority of roses, are glued together in one, and do not easily impregnate from any pollen placed there. I do not understand the cause of failure with Anne de Diesbach, having perfect flowers with which to work, and using it both as male and female parent. I anticipated that this would prove one of the best of all H. P. roses with which to experiment, and my entire lack of success is a mystery. But to successfully cross, not only different varieties, but different sorts in various classes, requires no great amount of skill, and is attainable after a little practice by almost any one. I hope this article may induce others to engage in one of the most interesting branches of floriculture, and any who are so disposed, and who have plants growing under glass, can, this winter, begin their experiments in the fascinating pursuit of hybridizing. Whenever possible,

it is well to choose a sunny day, and to operate in the morning, so that the flowers operated upon, can be exposed to the influence of the sun, immediately after they have been fertilized. The flower selected for a female parent should have the stamens removed by a fine pair of scissors, known, I believe, as embroidery scissors, just before the pollen is ripe. If the pollen be quite ripe, some of it is most likely to have fallen on the pistils, and a perfect cross could not then be expected; if, on the other hand, it be too green, the pistils will not be in a proper condition to receive it. It is therefore somewhat difficult to give precise directions as to just the proper time for removing the stamens, but in such a variety as Gen. Jacqueminot, it is generally best to remove them just before the natural unfolding of the flower. Therefore, a few hours before the flower would naturally fully open, the petals should either be pulled off, or be carefully pushed back from the centre of flower, and the stamens removed. It is best to carefully remove the flower petals altogether; this is easiest done by the fingers, pulling off the petals separately, or only two or three at a time. To apply the pollen, use a small camel's hair brush, and be sure that the pollen is quite ripe; if it does not readily attach itself to the brush, it is not in fit condition for use. The more single flowers will naturally give more pollen and be better seed bearers than the very double ones, and are therefore more suitable for first experiments. Such are General Jacqueminot, Bon Silene, Safrano, Duke of Edinburgh, etc. By hybridization, we may hope for results more speedy and more attainable than can be expected by simply sowing seeds, the produce of roses, left entirely under the control of natural agencies. We believe that by careful study and perseverance, it is possible within a decade or two of years, to have a yellow Marie Baumann, a white Alfred Colomb; surely these are worth striving for.

EDITORIAL NOTES.

HORTICULTURE ABOUT BALTIMORE.—Mr. John Feast gives in the *Maryland Farmer* some interesting notes on gardening in Baltimore. Mrs. Charles Ridgely's is near Towsontown, has a number of plant houses, fine grounds, and some good specimens of rare trees. One house is devoted to roses and violets. There is a cedar of Lebanon and a purple beech half a century old. Mr. Massey is the gardener in charge. Mrs. Lurman resides at Catonsville. Mr. Fauth is the gardener. On the grounds there is a Torreya taxifolia ten feet high, and other rare and good things. Rhododendrons and hollies tastefully arranged, are elegant features in the landscape gardening. There are grape and plant houses on the grounds. Mrs. George Brown has a nice surburban garden on the north of the town. The plant houses are kept in good condition, much store being set on camellias. There are three houses devoted to grapes. Mr. Charles Campbell, who has the reputation of being a first-class gardener, is in charge now. Mrs. John S. Gittings has an estate of many hundred acres. On the ornamental grounds are two greenhouses for general collections, and one large grapery. Forcing early vegetables is a special feature of the gardening here. The place is in charge of Mr. Wm. Baggs. Near this is the place of Mr. Philips, with grape and plant houses—but these are no longer kept up as matters of taste and personal enjoyment, but are rented out for commercial purposes. Mr. Samuel M. Shoemaker, Green Spring Valley, has a splendid mansion, and everything to correspond. The grape and plant houses are in excellent taste, and kept in first-class condition. The collections are continually enriched by novelties. R. W. L. Raisin has a grapery and several plant houses, Mr. Smith the gardener in charge is very successful in making the place pleasing to his employer, which is half the pleasure of owning a garden. W. H. Perot has one of the finest lawns in the country. The grounds are full of rare trees and fine specimens. There are separate houses for grapes, orchids, and many other things. It is one of the most beautiful and best kept gardens in the United States. Frederick Reinecker is the gardener, and his skill is highly commended.

SHADING THE GROUND.—In reference to the note in the GARDENER'S MONTHLY last fall, Mr. Daniel Smith, of Newburg, N. Y., says in the *Newburg Journal:* "I am exceedingly pleased by seeing this theory of shading the soil advocated by so able a journal as the GARDENER'S MONTHLY. My own observation satisfies me that we are too much disposed in the cultivation of plants to leave the soil exposed to the burning rays of the sun. So also with the fruit and ornamental shrubbery; the consequence is the moisture is so evaporated as to retard the growth, if not entirely destroy the plant. We have found

by actual experiment that some of our flowering plants that will not flourish in soils exposed to the sun succeed admirably when planted in the lawn with the grassy sod growing around and among them. The best Japan lilies I have seen in this vicinity were grown in this manner. Nearly or quite all of the varieties of our beautiful Japan lilies fail to succeed in our cultivated grounds unless the surface is kept cool by mulching. The same may be said of most of our garden as well as our field plants. Strawberries, for instance, are particularly benefited by this treatment, and by proper attention to it newly-set plants may be saved, as well as fine crops of fruits insured from established plants."

SCRAPS AND QUERIES.

BEDDING PLANTS.—A. L. O. E. says:—"Will the GARDENER'S MONTHLY please ask its contributors to say something about bedding out suited to the capacity of amateurs? Especially would like to know the six of the better kinds of scarlet geraniums for that purpose? The best pink and the best white? Perhaps Mr. Flitton—I think his initials are N. F. F.—would not object to name the variety which he uses; his beds are ablaze with bloom the entire summer, superior to anything I have seen anywhere? Also, when is the best time and manner or method of rooting Centaurea gymnocarpa? I observe it has a disagreeable habit of dying out in gaps. Have been told that seedlings would do better than cuttings, and tried both; each has tried to do its worst, and both, I must confess, have succeeded admirably in the attempt.

"One other little item I saw at the same place, a circular bed about twelve feet diameter; it was planted with somewhat of a Maltese cross with Echeveria, the angles filled in with Alternanthera in varieties, edged with Pyrethrum aureum, and skilfully kept. It was a perfect little gem the whole season. Any information about these matters would doubtless interest a large number of your amateur readers besides."

ERADICATING PAPER MULBERRY.—B. says: "If it is half as tenacious of life as Ailanthus, I suspect it will require ten times 'two or three times pulling of the sprouts' to kill the roots. I have been trying on an Ailanthus two years and have not finished yet. Our Town Council have taken one in hand, and instead of cutting it down at once have bored several holes in the trunk and filled with sulphuric acid. This was done late last summer and it remains to be seen with what success."

[The writer of this gave his advice from actual experience. Trees abounded on his several properties when they were first purchased, and the suckers from the old trees cut down were numerous. All signs of the trees disappeared after two seasons. The sprouts have to be pulled out as soon as a green leaf appears. Anything can be destroyed by this treatment. The writer utterly destroyed a quantity of the terrible pest—the horse nettle—Solanum Caroliniense in the same time by the same treatment.—Ed. G. M.]

EULALIA JAPONICA.—B. inquires:—"Are the Eulalias (Japonica and Zebrina) hardy? And the same with regard to Arundo donax variegata, and Hydrangeas Thomas Hogg and Stellata prolifera?"

[They have been in past mild winters, hardy in these parts,—Thomas Hogg dying to the ground and not flowering in consequence—but we must wait till this winter is over before we say more about them.—Ed. G. M.]

GREENHOUSE AND HOUSE GARDENING.

SEASONABLE HINTS.

The modern flower garden is a good deal dependent on the greenhouse for its summer beauty in these days. It will be wise, therefore, to look out for a good stock of bedding plants in time; by striking cuttings of such things as grow rapidly, and sowing seeds of such annuals as may be advanced to advantage.

Fuchsias may now be readily struck from the young growth of the old plants, which will make excellent blooming plants for the next summer season.

Dahlias should now be brought forward. A good plan is to shorten the extremity of the roots, put them in six-inch pots and place in a warm greenhouse. In a few weeks they will sprout, when they should be shaken out, divided

with a piece of root to each sprout, and separately potted in four-inch pots.

Pansies are now coming into flower. They like an airy frame, where they will not be roasted in mid-day nor exposed to drying winds, and yet have a free circulation of air and plenty of light. Planted out in such a frame, and the old shoots cut away as soon as the plant has done flowering, the plants will keep healthy over till the next season. Superior varieties can be raised from seed. Choose those with the roundish petals, best colors, and the first flowers that open, to raise seed from.

Camellias will require rather more water while growing than at other times. Just before they grow is a good season to graft. Cut down the stock, cleft graft in the crown, wax, and plunge in a bottom heat of 70°. A great many kinds may be had on one plant by the bottle system. A shoot about to grow is obtained, and attached to the stock as in inarching, the end of the shoot being put in a small phial of water suspended beneath it. This plan does best, however, with half ripe wood in July.

Geraniums, Pelargoniums, Cinerarias, and Chinese Primroses, must be kept as near the glass and light as possible; they do little good in shady places. Keep off the green Aphis—for this on a small scale there is nothing like hot water; on a large scale, tobacco smoke, in several successive light doses, is still the best remedy.

Azaleas succeed well by grafting with the half ripe shoots of the present season's growth on plants raised either by seeds or cuttings. Old wood does not take readily.

Chrysanthemums should now be raised from cuttings for fall flowering. They make better blooming plants than offsets.

For a time these plants fell back in public estimation, but some newer styles have brought them back again.

COMMUNICATIONS.

SOME OF THE NEW COLEUS.

BY J. R. H., RICHMOND, VA.

In response to the query of Mrs. R. B. Edson, about Dreer's New Hybrid Coleus, I take pleasure in giving my experience with regard to their hardiness in the summer sun. As the summers in our city are extremely dry and hot, I think it a very fair trial of them.

When I received my box of coleus from Mr. Dreer and opened it, the first thought was that I was swindled nicely, while I at once perceived that they were of an entirely new type of coleus, but considered their colors very ugly indeed, and quite different from the colored sheet in his catalogue. However, I determined to give them a trial before expressing my opinion. I put them in the hottest place I could find, determined to get out of them all the "come out," should there be any, and to my utter surprise their colors changed so rapidly and beautifully, that after a lapse of two weeks I could scarcely believe they were the same plants. I so much liked them I determined they should have a prominent place in my garden; and accordingly planted them on my border where they did not miss the sun at all while it shone. They grew off at once with the old colors (as when received) which discouraged me again, when to my surprise about the middle of June, they began to show their bright colors again, and in three weeks they were the brightest and prettiest coleus I have ever seen, and remained so with a continual growth until they were killed by the frost.

I must confess I never saw plants resemble as much the colored plates of their likeness, as did my coleus; just like the plate with the exception of the fine gloss, which of course I did not expect. It seemed that the hotter the atmosphere was the brighter they looked, and have stood the sun about 20 per cent. better than the older varieties. They have given me more pleasure than any set of new plants I have ever received. I consider them the greatest acquisition I have known in the soft-wooded class of plants. While there is quite a similarity in the tri-colored set, it is not at all an objection. The only objections to any of them are that Amabilis and Mrs. E. B. Cooper, while very rank growers, are exceedingly ugly, and Superbissima entirely worthless. It will not grow; I don't care what I do with it. Some seedlings that I have raised from them are very richly colored, and I think them much prettier than their parents, though I have not had a chance to test their qualities in the summer. The dwarf set of Dreer's and Henderson's entire set I have not had at all.

NEW COLEUS AT PITTSBURG.

BY ED. L. KOETHENS.

Mrs. R. B. Edson, on page 2, Jan. number of the GARDENER'S MONTHLY, asks for reports on

the new Coleus. The following is a brief statement of my experience with them. The ones mentioned below are selected from a large collection of the new varieties, gathered together from various sources. For bedding, these are the chosen ones. Gracilliana, Miss R. Kirkpatrick, Superbissima, and above all Speciosa of Dreer's set. Fairy and Spotted Gem, of Peter Henderson's set. The former of these (Fairy), is the best of that brilliantly striped and streaked class, both in point of habit and color, and the latter (Spotted Gem), is the hardiest of them all; it stood side by side with the old Verschaffeltii when the first frost came in the fall, and stood without blemish long after the old favorite was chilled. But for inside culture, many of the new ones are unsurpassed for beauty in any class of decorative plants. Here again Speciosa and Miss R. Kirkpatrick, of Dreer's set lay claims to attention, and his Amabilis is attractive for its free blooming properties. Fairy is also conspicuous, and Beacon takes the place of Superbissima in being much richer in color and more robust indoors, but Zephyr, in my opinion, crowns them all as a foliage plant for indoor culture; a single head often measuring ten inches across, with a rich bronzy-brown color. The above are all valuable acquisitions, and should be in every collection.

A VISIT TO EASTON, MASS., AND ST. JOHNSBURY, VER.

BY NORTHERN GARDENER.

The greenhouses of the Hon. Frederic Ames, at North Easton, Mass., should have a great interest for gardeners at all seasons of the year, because the collection of plants is so fine and the orchid collection so extremely rich and varied, and one that is rapidly increasing. Mr. Robinson, the able and efficient gardener, whom we met on entering, was much pleased to show us around. With him as our conductor, we enter the conservatory. Conspicuous among the other fine plants, with which the house is filled, was a grand specimen of Stenocarpus Cunninghami, six or seven feet high, breadth in proportion; a truly beautiful shrub, covered with its curious red and yellow flowers. Some fine plants of Grevilleas, also worthy of special mention. The roof was festooned with Tacsonia exoniensis, blooming very finely.

To the left of the conservatory are the vineries, in which are some extremely well grown plants of Dendrobes, undergoing the resting process; amongst them were such vars. as D. Falconeri, D. crassinode Barberianum, D. Wardianum, D. Devonianum, and a great many others, all looking as if they might be perfect wreaths of flowers in the blooming season. To the right of the conservatory, we enter the stove and palm house. I should say every plant in it was a specimen; palms looking very finely, crotons leaving nothing to be desired in the way of color, Marantas, Cyanophyllums, and the gorgeous Anthurium Marocqueanum, giving the house that rich tropical look that we all desire to see. Trained the whole length of this house, which is 67 x 27, is a plant of that rare climber, Ipomea Horsfalliæ. The flowers, a rich crimson, Gloxinia shaped. When I saw it, it was a little past, but bore unmistakable evidence of having been one mass of bloom the entire length of the vine. This plant only needs to be seen to become a general favorite. Mr. Robinson assures me that it is "easy to cultivate, a rapid grower, and very free flowering." There are so many plants to admire in this house that it would take too much space and time to mention them. Suffice it to say, they were all in good condition. On leaving the palm house, we enter the fernery or grotto, 45 x 40, a very beautiful house. Growing in the midst of rock-work were some very fine tree ferns Such a house must be seen to be thoroughly appreciated; one cannot do it justice by description. The plan of the house, and the manner in which it has been carried out, is highly commendable. From the end of the grotto, we enter the Odontoglossum house, a structure ninety-six feet long, and filled with plants of that dark green color that denotes perfect health. It has been said that Odontoglossums were difficult to cultivate, on account of our hot summers. But here it does not seem so, the plants thriving and looking as if they were in their native element. Conspicuous amongst others in bloom, were some fine plants of Odontoglossum Madrense; near it was a specimen O. nebulosum in fine shape. O. cirrhosum was represented by a remarkably well marked, large flowered variety. There were some good examples of O. Alexandræ and O. pescatorea in bloom Dozens of plants of the last mentioned vars. fairly bristling with flower spikes. O. Rossii majus and O. Bictonense, good plants, very nicely flowered. The plant in bloom of O. Insleayi leopardinum was very fine. We notice, in passing a neat specimen of the elegant Restrepia

antennifera, finely in bloom. The Oncidiums are represented in such varieties as O. Forbesii, with a fine spike; O. tigrinum, and several others of equal merit.

Before leaving this house I will record Lycaste Skinnerii alba, two plants in bloom, one with six of its beautiful blooms expanded. This is the finest of all the Lycastes that I have seen; and in Mr. Robinson's hands, that, as well as all the other cool orchids, luxuriate and grow freely. It would be difficult to imagine plants in a cleaner, healthier, or more vigorous condition. On leaving the cool orchid house, we enter the East Indian house, and the finest thing that meets the eye is a noble plant of Phalænopsis amabilis, having a branched spike, with numerous flowers. A short distance from it is a plant of Phalænopsis grandiflora equally as fine. In this house there were about one hundred P. Schillerianums in excellent condition, all showing flower spikes. Prominent were P. rosea, P. leucorrhoda and P. Lowii. Saccolabium giganteum, with two fine spikes; Saccolabium Harrisoni very fine. Dendrobium heterocarpum was very attractive; also, D. moniliforme, D. Bigibbum, and D. superbiens.

Angrœcums added greatly to the display in this house. A. eburneum excellent, and several very fine specimens of A. sesquipedale in bloom was a sight to be remembered. A. chailluanum also good. Ansellia Africana was represented by a noble plant in full flower. Calanthes were numerous and flowering finely. The vars. were C. vestita, C. vestita rosea, C. lutea and C. Veitchii. Some fine Cattleyas in bloom, the vars. being Cattleya Leopoldii, Cattleya Trianæ with several spikes a very rich type, C. Trianæ macrochila, C. chocoensis, C. Warscewiczii delicata, (this variety was extra fine), C. Pinellii and C. marginata, all good. In Cypripediums there was C. Crossii (new) and the rare C. vexillarium, some fine plants of C. Dominianum, C. Sedeni, C. Pearcei, C. longifolium, C. Roezlii, C. venustum, and C. Harrisianum, all in bloom. The plants of Cypripedium insigne were numerous, and well flowered. There was also a plant of Cypripedium Spicerianum in bloom, probably the finest plant of this variety on the continent. This plant has six strong growths, one flower fully developed with two other flowers showing. This plant gained a silver medal in Boston last fall, and to Mr. Robinson the honor falls of having first flowered Cypripedium Spicerianum on this side of the ocean. There were other plants that richly deserve to be spoken of, such as Aerides, Cymbidiums, Vandas, and especially Vanda cœrulea, with a large spike of its lovely blue flowers. Also the rare Cirrhopetalum medusæ, and the Rodriguezia secunda. I noticed a Vanda gigantea showing seven spikes, which will be a rare sight in the near future. We pass from this house to the Mexican house, and here find some fine Oncidiums and Lælias. Oncidium ornithorrhynchum and O. ornithorrhynchum alba were good. O. incurvum, O. Weltonii and O. Cavendishii, with O. crispum, all combined to render the display peculiarly attractive. There were some fine vars. of Lælia autumnalis, several plants of Lælia anceps, were decidedly superior. One plant of Lælia anceps showing no less than twenty spikes.

These are a few of the many attractions to be seen at Easton, and to lovers of the beautiful I would say, a visit to Easton will repay them well. Mr. Ames is to be congratulated on the possession of such a rich collection of orchids, the sturdy health, the perfect cleanliness, and the excellent condition of all the plants, reflect the highest credit on the manager.

CATTLEYA SKINNERII.

BY C. H. S.

Some one has asked for information on this Cattleya. C. Skinnerii wants more heat than any other Cattleya except C. superba and C. Dowiana. When I first commenced to grow C. Skinnerii, I found it placed in some catalogues as a cool, and in others as an intermediate orchid, and under this treatment I never bloomed them. Now, as soon as they commence to grow I put them in a moist, high temperature. They should be near the light, so as not to get too spindling. To bloom they must be grown very strong. When they have made their full growth, and begin to show the spathes, which will be in August, they must be put in a cooler and drier place to harden the bulbs. They make the flower spathes often six months before they bloom. These spathes sometimes get dry, and the flowers become abortive. It is necessary to split open the spathe to give the flowers a chance to get out. I find they do well with me in pots, the whole plant elevated well up. I have had as many as nine flowers on a spike. They can be forced quite easily. I will have a plant in bloom by February 20th, others not until late in April. There is a white variety, but it is rare.

I think if collectors would be more particular to give us full description of the houses of orchids, it would help us very much. Guatemala may mean a heat of from 75° to 100° on the coast, or 40° to 75° on the uplands.

NOTES ON NEW COLEUS.

BY MRS. M. D. WELLCOME, YARMOUTH, MAINE.

Mrs. E. B. Edson, in her charming "Garden Notes and Gossip," asks that "some of the correspondents who have tried the new coleus—Dreer's and Henderson's new sets—report thereon." I have not tried Henderson's, and only six of Dreer's; so I am not prepared to report very fully. But I wish to make special mention of "Miss Retta Kirkpatrick," which looks like the picture, though it is handsomer. It is the one represented by a large leaf, creamy white centre; broad, green-lobed margin. It was a wee plant when it came to me in early spring, but it very rapidly outgrew the other five, branching out finely, so that I began in June to take slips from it, and have continued to do this each month to the present time. I should think I had rooted full thirty cuttings, and the plant itself, which has been beheaded on three of its branches, has now twenty-eight shoots, that would all make fine plants, no doubt, if treated as were the others. I rooted them all in sand, kept constantly wet, and exposed a large part of the day to the direct rays of the sun. I never saw anything so quickly take root and so rapidly grow as did these cuttings. At one time I kept half a dozen about two months in the pure sand, till they were fine, large plants, with a great mass of roots. They can be removed from the sand to pots of earth without retarding their growth. I always allow the particles which adhere to remain in transplanting. This coleus is a special favorite with me. "Fairy," foliage yellow and green, blotched with crimson scarlet, and "Charm," yellow, tinged with bronzy scarlet, stained with dark brown; green deeply serrated margin, were very beautiful in the open ground, and from these I rooted also in sand several very fine cuttings. But the original plants did not grow rapidly.

I think the coleus adds much to the attractions of the border, but it is for the winter window-garden they are specially valuable.

I, too, can speak in praise of Acalypha Macaffeana. I received mine from Mr. John Saul in June, and it was one of the bright attractions of my collection of rare plants till November, when it dropped all of its leaves. Three new ones have since put forth.

MICHEL'S GREENHOUSES AT ST. LOUIS.

BY CHARLES CRUCKNELL.

On a recent visit to the hothouses of Michel & Co., this city, my attention was called to a curious freak of grafting. Mr. Emelé Wintzer, foreman of the establishment, had grafted a scion of Abutilon Thomsonii on one of the plain, deeply cut-leaved varieties,—name lost. The leaves of the new growth, both above the graft and also on other branches below the graft, are variegated like the scion, retaining the original shape of the leaf. Mr. Wintzer seems to have a *penchant* for the abutilon tribe. He has now growing over one hundred seedlings, several of which have bloomed, and show distinctive merit. Six of them have been named; one, a pretty dwarf named Blanche, the flowers pure white, may become a decided acquisition.

I was also shown a plant of General Grant geranium, the foliage variegated. It originally appeared as a sport on one of the old plants from which it was taken and rooted. The cutting is now a fine stocky plant, ten inches or a foot high, and every leaf variegated, and, from present appearances, appears as though it may become permanent.

NEW COLEUS.

BY H. W. HALES, RIDGEWOOD, N. J.

As one of your correspondents wishes some information about the new coleus of last year, and having been the raiser of those sent out by Mr. Henderson, I send you a few lines about my experience.

In regard to their standing the sun outdoors, I would say that there are only a few of them which do not "burn," and even these lose that extreme brightness which makes them so valuable for indoor decoration. One of the best and hardiest varieties is Spotted Gem; the word "spotted," however, hardly describes it, as it is dashed, striped and blotched, in a very curious way. The ground color of the leaves is bright green, changing when older to almost a clear yellow, and the markings are of very rich shades of crimson, maroon and yellow.

Another good variety is "Burning Bush." This is a very peculiar variety, and somewhat

reminds one of the dark flowers of some of the Japanese chrysanthemums, the leaves being deeply cut, and of a peculiar rosy bronze color, tinted with carmine, orange, and crimson. "Cloth of Gold," as its name indicates, is of a golden yellow color, sometimes edged with green, when grown under glass; growth very neat and compact. "Glory of Autumn" is another coleus of good habit of growth; leaves a deep crimson bronze, slightly margined with yellow. Of the lighter colored varieties, "Sensation" is one of the best, the color of the leaves is a light yellowish carmine, with bright yellow edge—very fine for indoor decoration. "Starlight" is also a good light variety; leaves yellow, veined with carmine and crimson.

"Rosamond" is one of the brightest and best of those of my raising, and is very highly colored. The leaves have a background of bright yellow, and are curiously blotched and striped with the brightest shades of carmine, green, crimson and pink.

I shall probably experiment further with the new coleus next summer, when I hope to be able to report the result in the MONTHLY.

DANGER FROM COAL TAR.

BY PETER HENDERSON, JERSEY CITY.

"We have recently put new water pipes into our greenhouses, and unfortunately had them painted with coal tar, very much to the injury of our plants. Can you suggest any remedy to get rid of the trouble, or will the gas discontinue after a while. J. D. C."

The above is one of three letters received during the past thirty days from parties who have been unfortunate enough to have painted their hot water pipes with coal tar, asking what to do to get rid of it; and though I have replied by letter to each, there is but little doubt that others will fall into the same error. I thought it would be well once again to give warning through the MONTHLY, and at the same time state what is believed to be the only remedy when the mischief is done—namely, to take down the pipes and burn them in a heat sufficient to evaporate the tar, which penetrates deep into the iron. This can only be safely done at this season, of course, by providing some temporary means of heating, such as stoves, until the pipes can be again put up; but it is better to go to that expense and inconvenience at once than to keep firing during the whole season with the tar-painted pipes, for every cold night, when extra heat is necessary, will show the evil results in the morning by showers of dropping leaves and flowers. In your columns, again and again, has the warning against painting hot-water pipes with coal tar been given, yet every season brings its fresh victims. From the cheapness of coal tar, and a prevailing opinion of its preservative qualities, it is often used in greenhouse construction. As far as our observation has gone, we have come to the conclusion that it is of little value, unless on outside work exposed to the air, and then only when it is used often enough to form a coating or skin on the wood work. We have used it on shelving and posts in years past, and have never been able to see that the wood ever lasted any longer than when it was not used; and as the substance is a dangerous one whenever exposed to a temperature high enough to evolve the gas, we have come to the conclusion that it is safer to keep it from the inside of the greenhouse altogether.

MEALY BUG.

BY "A NEW SUBSCRIBER," HARTFORD, CONN.

In January MONTHLY, page 13, Mrs. J. D. S., Upper Sandusky, asks: "Is there any way to keep down mealy bug. My way is to apply kerosene oil with a thin, sharp-pointed stick. It can be done as fast as sponging, and more thorough, as it can be used where it is difficult to get the sponge between small twigs. I use it on all soft and hard-wooded plants that are infested. It does not hurt the plant to use it in this way."

GAS TAR ON HOT WATER PIPES.

BY A "NEW SUBSCRIBER," HARTFORD, CONN.

In January number, page 13, a young florist is mentioned who painted his hot-water pipes with gas tar. I think benzine and a wire brush would take it off without much trouble.

EDITORIAL NOTES.

COMMUNICATIONS.—While renewing subscriptions, many friends have kindly taken occasion to send communications for the reading pages. We are unusually favored with good things just now, and especially in this department, we have to hold one or two excellent papers over until next month.

CULTIVATING WATER LILIES. — The *Country*

Gentleman writes, that Mr. B. Gray, Walden, Mass., grows these in large quantities, profitably for cut flowers. They are kept in water-tight pans and pots.

IMPROVED CHINESE PRIMROSES.—Among the matters of interest at the Gettysburg meeting of the State Horticultural Association, was an exhibit of improved Chinese Primroses by Mr. Henry Rupp, whose great success has been before noted in the GARDENER'S MONTHLY. By persevering selection and crossing he has now nearly a couple of dozen varieties. Mr. Rupp finds that after the varieties are once secured, not over three per cent. shows any disposition to wander from their new characters.

DOUBLE PINK BOUVARDIA.—Some persons are always in good luck. We hear that a double pink Bouvardia is among the recent windfalls. It is remarkable that one should follow the other —the double white—so soon.

SCRAPS AND QUERIES.

FINE POINSETTA.—Mr. John Gunn, writes: "I have sent you one of my Poinsettas. Do you call it a good one for having been grown in a common greenhouse temperature?"

[Very fine. It measured twelve inches from the tip of one bract to the other, across the head.—Ed. G. M.]

CARNATION LUCY SIGLER.—Some blooms of this came in excellent order. It is very large, and of a good dark color.

FINE ORCHIDS.—The Chicago Foral Co., send blooms of Oncidium Krameri, which "is the sixth time it has flowered this season," and also one of Lælia anceps, which is "one of five on a spike." This is a large number, and shows good culture. It is pleasant to note the increasing taste for these pretty things.

CARNATIONS FROM Mr. BREITMEYER.—A large number of what appeared to be very good seedlings, came to hand, but they were utterly dried up in dry cotton, and no opinion could be formed of them.

THE YELLOW BOUVARDIA.—The following reply to an inquiry recently made is supplied from the *Garden*. We cannot learn that it has yet appeared in American gardens. It is Bouvardia flava. The flowers of this kind are of such an uncommon color, that one would expect to find it grown almost in every garden, but such is not the case; indeed, it is but poorly represented in even the large nurseries. It differs in no other important respect from the other varieties, except by the clear yellow color of the flowers, which are plentifully produced even on young plants. Another noteworthy variety we saw in Messrs. Veitch's, at Chelsea, was Rosea oculata, which has large flowers of a delicate blush hue and a conspicuous deep-tinted eye, which renders it a distinct and attractive plant. This variety occupies the greater part of a house, a fact which affords a proof of its popularity. Among other attractive sorts we noted were Maiden's Blush, a delicate soft blush tint, and is a free flowerer and of vigorous growth.

RICHARDIA NOT FLOWERING.—"A subscriber." Phila, says: "A few weeks ago I was in the greenhouse of an amateur friend. I noticed his calla lilies looked very much drawn, and when I asked the reason he said the roof had not the right slant. Now if this is the fact, why would it not be a good idea to have some persons of experience tell the readers of the MONTHLY what is the best slant to grow the different plants to the best advantage? If you think this of enough importance, please answer in the GARDENER'S MONTHLY, as it might benefit some of your readers."

[It was quite likely that the roof was too flat, for to flower calla lilies well in the winter season, they require direct sunlight, which is best secured by a steep pitch. The best pitch for a house cannot well be given without knowing the general purposes for which the house is to be put. Though a steep pitch is best where a full supply of winter flowers is desirable, it is objectionable in making the plants themselves one sided and shapeless. As a medium angle, it is usual to recommend 45°.—Ed. G. M.]

DISEASE IN CARNATIONS.—W. M. G., Niles, Michigan, writes: "In taking up my carnations I cut around each plant, and deep enough to not disturb the roots in the least, carrying in one at a time, and planted them on the benches. They did not even wilt; and from a bed of one hundred and fifty carnations, I have not had one dozen blooms. They have grown to the glass, are full of buds, and there they stand. I took five hundred cuttings from them two months ago, and not one has rooted. My night temperature averages 48°. What is the trouble? I have another house (heated by a brick flue) facing the

south. I designed it for winter forcing, but as fast as the buds begin to open they dry up. The flue is saturated with creosote or the oil of smoke, which gives the house an unpleasant smell. Is this poisonous to plants, and how can it be avoided? A remedy for the above troubles will be gratefully accepted."

[We have had specimens of carnations, geraniums and other plants, from the West, covered by some parasitic fungus. Flour of Sulphur is an excellent remedy for these low fungoid pests. —Ed. G. M.]

Failures in Geraniums.—M., Lansing, Mich., writes: "At your convenience I would be glad if you could tell me what to do to make my geraniums bloom. I have them in a house with a southern exposure, warmed with brick flue, night temperature 50° to 60°. I have old plants and young plants, in large pots, 6-inch, down to 2½-inch pots. They grow fairly, and come into bud and grow until as large as the inclosed, when they blight and seem to dry up. We keep the house quite damp, and sprinkle overhead every day, sometimes twice. We have had quite dark weather and very cold since October. If not too much trouble, an early answer will be thankfully received."

[We have had specimens of this disease several times from the West. The flowers are attacked by a parasitic fungus. As in all similar cases, we suppose an application of powdered sulphur would cure the evil.—Ed. G. M.]

Electric Light and Steam Boilers.–A Boston correspondent says: "What reason is there one cannot use steam boilers to heat hot water pipes, as well as water boilers? Are there any steam boilers in use? What about electric light, do you use it? Could you have steam boilers to heat, and an engine to make electric light. You claim electric light would improve the flowers. There is a chance for invention."

[The electric light was found useful in England where they have little winter light. But Americans have all the light they need in winter. If to be used for any purpose in horticulture, it must be for some different purpose.—Ed. G. M.]

FRUIT AND VEGETABLE GARDENING.

SEASONABLE HINTS.

The past winter, when the ground has been covered with snow for months, mice, rabbits and other animals have been nearly starved, and have had to take what they could get, even to the bark of apple and other orchard trees. All this could have been prevented if the trees had paper tied around them for a few feet from the ground, and gas tar smeared over the paper. But these animals do no hurt in open winters, and we seldom think to prepare for what may be. But what can be done with the barked trees? All they need is a connection of bark between the two disconnected portions. This connection can be made by inserting a scion between the bark on the root and the bark on the stem, bending the scion outwards and then tying it in to the trunk, so as to press the ends firmly in place. The following cut of the Cornelius grape-graft gives this bending idea exactly.

After the graft has been set in, the whole may be covered by earth. If several of these grafts can be set in around the trunk, it will be

so much the better. Where time cannot be given to this, or where the trees are not wholly girdled, earth may be banked over the wounded part, and the top of the tree pruned more or less severely, according to the extent of the injury. In this case roots will come out from the upper and lower part of the bark on the trunk, and thus save the tree, though it will be somewhat checked in its growth for a year or two.

In connection with this subject of grafting any choice fruit may be grafted, at this season, on others less desirable. The scions should be cut before the buds begin to swell, and set in the ground as cuttings. But they should not be grafted till the stock is just about bursting into

leaf. Those who have much of this work to do begin earlier—we speak principally to amateurs with but a few things to graft.

Pruning of most kinds of fruits has been accomplished through the winter. It is customary, however, to leave the peach till towards spring, in order to cut out any wood that may be injured through the winter. In other respects, the peach should have little pruning at this season, as it tends only to make it grow more luxuriously; and a too free vigor of growth is a fault of the peach in this climate. The only pruning admissible is that which has for its object the production of shoots in naked or desirable places.

It may be said of all fruit trees, they should be severely pruned at planting, and every other means resorted to in order to produce a vigorous healthy growth. Fruit, worthy of the name of fruit, is the result of healthy growth the season previous, and it is impossible to obtain both the same season of planting. If any fruit sets in a transplanted tree, it should be remorselessly torn off and cast away.

This is a busy season south of Pennsylvania in this department; here we must wait till the end of the month, and northward still later. The crops noted will, of course, be dependent on the arrival of the season which is rather indicated by the ground becoming warm and dry, than by the almanac. It is very important to have crops early; as soon as the ground is, therefore, in good condition, put in the seed. Possibly a cold rain might come and injure them, and you may lose, and have to make a new sowing. Even so, it is but the loss of the seed and labor, while, if the seed do not die, the early crop will more than repay that risk.

Where new asparagus beds are to be made, now is the time; the ground should be rather moist than dry, and be trenched about two feet deep, mixing in with it a good quantity of stable dung, and, if the ground be inclining to sand, add some salt; the beds should be marked out four feet wide, and the alleys about two feet. If pegs are driven down at the corners of the beds permanently, they will assist operations in future years. Having marked the positions of the beds and procured a stock of two year old plants, place them on the soil nine inches apart in rows, one foot asunder, making three rows in each bed; then cover the whole with soil from the alleys and rich compost a couple of inches.

Those who have no spinach sown in the fall should do that right away; no amount of stable manure but will be a benefit to it, though guano, in even small doses, will kill it; guano produces excellent cabbage, mixed with the ground while it is being dug for that crop. Cabbage, by the way, may be put in as soon as the ground is ready; and potatoes are better in before the beginning of next month, if the ground is not too wet; many plant cabbage between the potato rows.

Deep, rich soil, now so generally condemned for fruit gardens, is of the first importance here. Soil cannot be too rich or too deep, if we would have good vegetables. It is, indeed, remarkable, that in many respects we have to go very differently to work to get good fruits than we have to perfect vegetables. While, for instance, we require sunlight to get the best richness to our fruits, our vegetables are usually best when blanched or kept from the light. So, also, as we keep the roots as near the surface as we can in order to favor the woody tissue in trees, we like to let them go deep in vegetables, because this favors succulence.

COMMUNICATIONS.

THE PLOUGH AND THE SPADE.

BY WALTER ELDER, PHILADELPHIA.

The above title was a bad one to use, by former correspondent, leading to the impression that they are antagonistic, whereas both are well enough each in its way, and one cannot be dispensed with more than another. There is no doubt an immense amount of land in England might be ploughed that is now spaded; on the other hand I think it will be conceded that for many crops much greater results can be had by the spade than the plough. The spade goes deep, and finally pulverizes, and if there is any truth in all that we have been told about subsoiling and deep culture, spade-work ought to tell. In some kinds of crops also, there would certainly be an advantage. I think any one will admit that better crops of celery could be had by judicious spade culture than under the plough. Indeed I think there are few who will not admit that very much more can be made of a piece of ground well managed by spade than under any plough system,—and this being the case the whole question of which is best follows no rule, but is one of profit and loss. Land is generally cheap and labor dear at a dis-

tance from market. In such cases the plough only can be used to a profit; but close to a market the facts are reversed. The land is dear and the labor cheap,—in such cases it pays to get all possible out of every inch of dirt, and there is nothing like the spade for doing it. I have known land in England to rent for market gardens at $100 an acre per year,—and, with labor very cheap, much more can be made of it by spade than ever could be made by the plough.

ROOT BLIGHT IN APPLE TREES.

BY B. T. CARROLL, DRESDEN, TEXAS.

In reading different agricultural and horticultural papers and magazines, I find many writers discussing the subject of "root blight" in apple trees in Missouri and Texas. Now, if I can add one word that will lead to a solution of this vexed subject I will feel myself amply paid for my time and trouble.

It is true that apple trees die by the thousands in Texas every year, until many have come to the conclusion that apples cannot be raised here on account of this imaginary disease, "root blight." I say imaginary disease, because I think there is no such a disease. I boldly assert that I can find lands in Texas that will grow apple trees and mature the fruit as well as any lands in Missouri, Ohio or any other State in the United States. And again, I can find land all over the State that will not grow apple trees at all, or rather the trees will die in two, four or six years or as soon as the roots have penetrated the subsoil. More apple trees die from borers and improper planting and cultivating than anything else. There are many places in our State where the cotton plant and bois d' Arc hedge die more or less every year, and some years worse than others. This soil has puzzled our scientists a great deal and they have not yet agreed upon the cause and remedy. On analysis of the soil, both top and subsoil, nothing destructive to plant growth was found. Wet springs and early summer, with our usual dry hot weather through July, August and September produce death on this soil. But if we have but little rain in the spring and a mild summer with occasional showers, but little damage is done. Our soil in many places is like a jug—will hold water as well. If we have plenty of rain in the spring to thoroughly wet the subsoil, with dry hot weather, as before stated, the water in the subsoil stagnates, the lower roots take up this stagnant water, convey it to roots above, the roots soon begin to blacken and the bark to slip like a scalded potato, and this is the "root blight." All surface rooted plants do well on this soil, while the sweet potato, a deep-rooted tuber will rot; the pea, another top-rooted plant dies; in fact many vegetable plants and many kinds of trees that have a centre root that goes deep in the subsoil will die and rot in this poisonous soil, which shows conclusively that the destructive element is in the subsoil. Professor S. B. Buckley, of San Antonio, Texas, a close student of nature, thinks it has been proven that this so-called "root blight" is caused by a minute fungus. I doubt this, but do not deny that fungus is found in the roots of the water-soaked trees; but on healthy trees, or rather trees growing on land that will drain its subsoil you cannot find a particle of fungus of any description. We have here what I call wind blight in pear trees. Young pear twigs are killed for one or two inches by the continued dry south winds we always have through April, May and June; but this does not injure the trees to any great extent,—it only checks the growth and causes the trees to mature more fruit buds.

I live on a belt of black sandy land, the soil of which is six inches to three feet deep on a red clay foundation. This red clay foundation is from four to six feet thick; then sets in a hard yellow sand, as hard almost as cement, and when dug up and incorporated with the soil makes an excellent manure. The clay when turned up and exposed to the sun soon slacks like lime and is easily incorporated with the soil; hence you see our soil is inexhaustible. You will find this destructive soil on our black waxy lands as well as on sandy soil.

I have lately examined the roots of an apple tree, under a great magnifying microscope, that was destroyed by this stagnant water, and discovered fungi in active growth, but this does not prove that the tree was killed by fungi, for it is too true that the decomposition of vegetable matter will often produce what botanists call "organic acids" which are very destructive to the apple and pear; but on the contrary, if the little roots or feeders could only take up pure water from this decomposed vegetable matter no injury would be done, but the trees be greatly benefited; but should the roots be kept in stagnant water with the addition of the acids above-mentioned death will invariably follow.

How are we to save our trees from this destructive soil? My plan is to bore deep holes

with a six-inch post auger, say eight or ten feet, fill up with chips, tan bark or a small pole. Several of these holes bored around your trees filled with tan bark will save your trees. The idea is to get to a soil below that will drain itself. Deep subsoil drainage is the only remedy, and if properly done "root blight" will disappear forever. There are certain varieties of apples that will do well with us, none better than Early Harvest, Red Astrachan, Horse Willow Twig, Ben Davis, Twenty-ounce, Shockley and Nickajack. I will add Excelsior raised from seed in Hill County, Texas, ripens in July. As for pears, there is no country in the world that will beat Texas for pears, which has been proved by Wm. Watson, of Brenham, Texas, and others all over the State.

POT VINES AT MANSFIELD NURSERIES, MASS.

BY "NORTHERN GARDENER."

At the Mansfield Nurseries, (Winter Brothers) are now to be seen some very fine grapes, ripe, grown in 16-inch pots, some extra large bunches among them for pot vines. Some bunches will each weigh three pounds; color and bloom perfect; foliage large and healthy. As a feat of early forcing, this surely is unparalleled. Mr. Murray Winter informs me that they cut ripe grapes all the winter, by regular successions of pot vines. They find a ready market for all the grapes they raise, in Boston. The heavy crops they succeed in taking from the vines must make the business very remunerative. At the same nursery tomato-forcing is one of the prominent winter features; from October until May they force from forty to fifty bushels.

PINE APPLES.

BY N. F. F., WAVERLY, MD.

A correspondent asks for instruction in growing pine apples. I have never thought it requires as much skill—or at all events not more—to grow pine apples than to grow tomatoes under glass. If "Inquirer" is a gardener who has not had experience in the cultivation of this fruit he need not experience any serious difficulty in the matter. All things considered, we prefer low span roofed houses, so that the plants may have light sufficient, and be not too far from the glass. They must have bottom heat, and the most convenient, perhaps the most economical method of supplying it is by hot-water. A hot air chamber under the bed, heated by pipes, is the best way, and the one least liable to accident. The bed in which they are grown should be not less than four feet deep; this depth is sufficient to cover the largest pot with the plunging material if the pines are thus grown, and it also gives a sufficient depth of soil if the plants are planted out, which is the preferable way of doing it.

The material for growing them in, if planted out, may be about as follows: say about six inches of drainage, which may consist of broken brick, &c.; over this a layer of sod, grass downward, cut about the same thickness as for sodding; then about two inches of half-inch and coarser bones; over that another layer of sod three or four inches thick, which will constitute a kind of backbone to the bed. Prepare the compost of sod chopped into pieces three or four inches square, mix through it charcoal and broken stone of the size of a shellbark nut and smaller—but no dust—also broken bone liberally. Fill the bed to within eight to ten inches of the top. Secure clean healthy young plants of an approved variety or varieties, and plant in the bed up to the lower leaves about three feet apart. If a large variety—as the Providence—be grown, give at the least another foot of space to each plant. Press the surface smooth, and water with water as hot as the hand can bear in it if the weather be cool.

If the bed is mulched it will keep the moisture more uniform and reduce the trouble of watering to a minimum. A good temperature is 75°, although I have often raised it considerably higher during summer; but I would not like the heat to fall much below that mark for any length of time during the season of growth.

To obtain good, strong, stocky growth keep the bottom heat well up; 90° is not too high. Water liberally with liquid manure during the growing; give air in the morning before the sun has risen too high; close early in the evening, dampening the beds, walks, &c., at the same time. Gills and suckers should be removed to throw the strength into the fruit. As soon as the fruit commences to change color, withhold water and maintain a dryer atmosphere. If the fruit be ripened in cold weather, cut a few days before fully ripe and place in a higher temperature; it will improve the flavor and prevent early decay. When the pine apple fruits it throws up suckers; these are sometimes rooted before the fruit is cut; but whether they are or not

is immaterial, as they root very readily. When the fruit is cut remove the stools, separate the suckers and plant singly, as at first, potting a few of the best suckers to insure keeping up a stock. This is the whole round of pine apple culture. It will be seen that a very rich compost is not recommended,—it is better to supply it in a liquid form when needed.

To summarize,—start with good, clean, healthy suckers, don't injure the leaves by any means during the period of growth, be careful not to check it by any sudden change, as of temperature, drouth, &c. Mulch in the late fall to obviate the necessity of much watering during the winter, keeping the plants at that season in a medium state of dryness. Maintain an equable temperature, when fire-heat is necessary, of 55° to 60°, bottom heat 10° higher, allowing a rise of 10° by solar heat whenever convenient.

HOW TO SAVE YOUR APPLES.

BY E P. POWELL.

No sooner are our fruits well housed for winter than the question is asked by neighbors, "Are your apples keeping well? Mine are rotting badly." Let me suggest where the difficulty comes in.

1. Apples are not picked properly. My pickers must carefully loosen each apple and lay it in the basket. The usual custom is to pull roughly and drop or toss into a basket, from three inches to a foot, or even farther. This breaks a few cells, and prepares for early decay. It takes longer, but is in the end a great saving of time to compel your men to handle apples like eggs.

2. Apples are not handled properly after picking. My plan is to have them poured over the hands into a wagon, in which is spread some soft rowen. From the wagon they are sorted and placed in the cellar. I do not like the plan of pouring in piles on the ground, or placing under sheds. If properly handled, they may better be at once placed in bins in a cool, well ventilated cellar. If to be sold at once, I place them in piles and sort into barrels. But the chief point at this stage is to prevent the pouring of apples from the basket, or bouncing them into piles; and then pouring them into barrels from the top to the bottom. At least one-half of the American apple crop suffers in this way, in the barreling.

3. Apples are improperly sorted. There should be three grades. The first of those absolutely free from bruise, worm holes or any defect that can cause decay. The second, of those that will probably keep a long while, but may decay and spoil others. The third, of apples for early use. The first grade will not trouble one till their full maturity. The second will need a careful review in December. The third must be kept under supervision and used early. All that rot will prove of use for fowls or cattle. Not an animal of any kind about a farm but should have plenty of apples all winter. It is the cheapest and healthiest food. Nature does her best to help the whole of us to whom she has given a taste for apples.

4. Apples are not properly stored. The cellar should be cool, just above freezing. It should be well ventilated and kept moderately dry. It should be just dry enough to prevent mildew, but not so dry as to shrivel the fruit. It is nearly impossible to keep apples well in a cellar where there is a furnace. The apples should lie in bins, or in very fresh clean barrels. The cellar should be kept as clean as the kitchen, and frequently swept. No odor of decaying vegetables should be tolerated. The floor should be clay, grouted if necessary. No old decaying wood should be left inside. Cider and vinegar barrels should be fresh and without leak. Apples take bad odors almost as readily as butter.

5. Apples are not properly marketed. If your cellar stock goes to market in winter, there should be the same precision in handling as in autumn was used in storing. It is important to keep the reputation of your brand good. There is need of careful discrimination as to time for marketing different varieties. There is no profit in holding on to your Spitzenbergs beyond December; your Greenings beyond January; your Snow and Belmonts and other varieties that may keep late will not pay beyond December. Jonathans, Swaars and Baldwins will do to hold till March or April. Newtown Pippins, Kirklands and Spys, with Roxbury Russets should be put away so carefully that they need not be sold before May,—even late in the month. Kirklands and Spys I have sold as late as May 25th, with large profit. The late keepers are by far the most profitable. But they are a dead loss if badly handled.

The standing rule is—handle apples like eggs and they will not decay. Lay them into the basket; lay them out of it. Lay them into their bins or barrels. Never drop, toss nor roll about

your fruit and you will be able to answer, "O, they are keeping finely in my cellar, hardly any rotten ones."

EDITORIAL NOTES.

THEY ONLY STOLE A FEW CHERRIES.—The *Country Gentleman* has the following from an Orange, New Jersey, correspondent:—"Eight of the city roughs bounded over the fence and commenced clawing off the large clusters of green cherries and thrusting them into their pockets. But before they knew where we came from, a policeman nabbed one, and I seized another, and we escorted them to the station, where they were locked up for several days. I then entered complaint against six others, whose names and places of abode were given to the police justice of the city, who issued a warrant for each of the young desperadoes, and sent two or three officers very early in the morning before the young fruit thieves had arisen, and had them also brought to the station, where they were all punished so severely that they did not enter the orchard again."

It is gratifying to note that there are police justices in New Jersey who are not led away by the sympathetic nonsense that "they only stole a few cherries," and the whole community of horticulturists owe a debt to this unknown person who persisted in prosecuting them.

BEST GRAFTING GRAPES.—Some of the California papers are recommending that the foreign kinds used there are grafted on American varieties, to prevail against the Phylloxera. But we should suppose root grafting would have little advantage, for the old sorts would send out their own roots in time. To succeed well the graft should be above ground.

EXPORTS OF APPLES.—A recent *Gardener's Magazine* says:—"American apples are still arriving in large quantities at Liverpool, but owing to the unsatisfactory condition of the greater portion and the dullness of the demand, prices have ruled low. The total number of barrels landed at Liverpool from the commencement of the season to the close of the year was 584,728, as compared with 177,900 barrels in the same period of 1879.

CANADIAN APPLES.—A correspondent of the *Gardener's Record* says:—"In Covent Garden I hear a very good account of Canadian apples, and was surprised to learn they were beating the American product out of the field. There seems some reason for this, as the Canadian apples are better packed; the American barrels are usually 'topped up,' in market parlance—a layer or two of good fruit at the top, and then fruit of a poor quality below. On the other hand, the Canadian fruit is generally fairly good throughout, the barrels are well packed, and considerably larger than those of the Americans. A very excellent apple which has been coming in large quantities is what is called the Golden Russet; it has a high and rich flavor. In some sales lately, Canadians, when compared with Americans, were in the proportions of over six to one. This must be very encouraging to the Canadians, and should teach the Americans to pack honestly if they wish to keep their trade."

THE FOREIGN GRAPE.—In a recent work on grape culture no less than 538 varieties of the foreign grape have been described. It is moved and seconded that a committee be appointed to cut the number down to fifty. The Black Hamburg and the Muscat of Alexandria ought to lead off in that fifty.

PEARS IN ILLINOIS.—B. O. Curtis, of Paris, Ill., says he has a standard tree of the Anjou which has never lost a leaf, twig or bud by winter-killing; has never blighted; which annually produces a moderate crop of large, handsome pears, scarcely to be surpassed in quality. He has five dwarf trees of the same sort, twenty-seven years planted, in the same excellent condition of health and bearing. He thinks that by proper selection pears may be raised for fifty cents per bushel in Illinois.

BARBED WIRE FENCES.—The *Country Gentleman* remarks that the objection made that cattle do not see, and run against them, may be partially removed by planting light-growing hedge plants in connection with the fences.

THE PRENTISS GRAPE.—Among the white grapes which promise well, the Prentiss stands very high. It is early, ripens with Concord, is very productive, and in all the samples we have tasted it has been of excellent flavor.

THE LEVY PEACH.—Mr. Geo. Hussman considers Levy's Late and Henrietta to have no special difference worth noting.

BEARING OF ENGLISH WALNUTS.—A correspondent of the Pacific *Rural Press* speaks of the English walnut not bearing even when twenty-

two years old. It must be a bad case. They will bear in less than half that time in the East.

THE AMERICAN WONDER PEA.—This dwarf variety, introduced by Messrs. Bliss, seems to be having a popular run in England.

PEACH YELLOWS IN GEORGIA.—The following valuable note has been handed to us by Mr. John Rutter.

"Augusta, Ga., February 12, 1881.

"Mr. J. Rutter, West Chester, Pa.:

"Dear Sir:—The question of the existence of the 'Yellows' in Peaches in this State has been discussed in our societies and the result is that no one could positively say that he had ever seen a genuine case of it here. In the course of my observations, extending over twenty-five years, I have never seen a tree affected with it here, or in any place south of New Jersey; and I am, therefore, safe in saying that the disease is unknown in this section. What may have happened in Mississippi, according to the statement made by a member of Penna. [illegible] Growers' Society, may be possible; but I s[illegible] like undoubted evidence of this, and if th[illegible]ality can be ascertained where the disease affected the trees we can readily find out the extent of the disaster and perhaps the origin in that locality. This is an important matter, and if the fact of the loss in Mississippi is really so, there is cause for careful investigation.

Very respectfully,

"P. J. Berckmans."

[The "member" referred to, was the editor of this journal. He merely stated what he saw himself on the line of "Jackson route," through the State. It would not have been difficult in that year to find plenty of "samples." It is scarcely possible that one familiar with "yellows" should not know it, though the trees be many yards away. If these trees with their yellowed leaves, "water sprout" branches from the trunks, and dead branches generally, had not the yellows, they had something else just as bad. This statement was made in our magazine at the time of our visit, and does not seem to have been controverted before.—Ed. G. M.]

SCRAPS AND QUERIES.

THE WINTER AND THE PEACH CROP.—Papers that had an annual laugh over reports of "certain destruction of the peach crop," are taking the matter seriously this year. Still we would advise them not to give it up yet. There has been severe cold, and there are many black-hearted buds; but it is quite likely enough have been saved to give us all we need. At any rate it is as well to wait a little yet.

LAYING DOWN GRAPE VINES.—A correspondent who sent us the query in our last, writes:

"I do not wish to trouble you to make another reply to a question that you understood me to ask in December last; but I may explain that you misunderstood the character of the question. It was in the last week of December, 1880, that I wrote; my gardener was then, I think, scraping his vines and painting them with a sulphur wash, preparatory to wrapping them with straw and laying them down. I expressed surprise that this work had not been done earlier in the season and he replied that the object of wrapping the vines and laying them down was to shield them from the sun and not from cold, and that he was all right as to time. I desired then, avoiding reference to the particular case, to have the opinion of the Editor of the MONTHLY on the rationale of the operation."

[We are always glad to have questions of public interest for the GARDENER'S MONTHLY, and never regard it as any trouble to say all we may know about them. In the present aspect of the question, it is still one of much interest to greenhouse grape growers. There are three objects gained by laying down grapes. First, they sometimes are injured in a cold grapery by frost; secondly, where they are not required very early the sun in winter will sometimes advance the buds, only to have them injured by a severe night frost; thirdly, when the vine pushes into leaf in an upright position, the upper buds often burst before the lower ones, in which case the lower ones push weak; by bending down the cane till after the buds have burst, a much more regular growth is insured. There was therefore an abundance of time for good results from the two last reasons,—and as for the first, it is seldom that frosts injure vines under glass till the warm suns of January excite the sap. We are glad that these house grape questions are coming up. House culture of the grape has been neglected of late years, but there are few departments of amateur gardening that give more real pleasure. —Ed. G. M.]

GERMAN PRUNES.—"Are there any German prune trees to be found in this country, and do they bear good fruit? Which is the best kind in this country; and how do they need to be treated?"

[The German prune is in the catalogues o most American nurserymen who grow collections of plums. They are not dried in this country, probably because the plum crop has

been hitherto too uncertain to reduce to a regular drying industry. If they could be certainly grown in quantities every year, no doubt the American fruit dryer would do the business for them.—Ed. G. M.]

THE POCKLINGTON GRAPE.—W. C., Junction City, Kansas, writes:

"I send you a 'blow' for an ugly named grape that you have failed to mention. What do you know about it. An answer in your next MONTHLY will greatly oblige."

[With this came a card stating that it is "the best hardy out-door white grape known, etc. "We have noticed the grape before, as we do all new varieties likely to be of value. We can only say that the name attached to the card is that of a nurseryman in very good standing among his brethren. We may not have had the experience which would warrant us in saying it is the "best white kind known;" but have no hesitation in saying it is one that will give general satisfaction.—Ed. G. M.]

APPLE ESOPUS SPITZENBERG.—H. C. K., Tolona, Mo., writes:

"I have sent to your address by mail, samples of apples that I think probably are seedlings; those who have seen them cannot tell what they are. Some claim that they are an old variety but cannot give the name. Now, what I want to know is if they are an old variety and what is the name by which they are known, so that I can get them of parties having them for sale. I like them; they suit my taste exactly."

[We see no difference from Esopus Spitzenberg beyond what locality may cause. It is well to know that it thrives so well in Missouri. It is an extremely popular market apple, but the tree generally does not thrive well enough to make it popular with extensive planters in the East.—Ed. G. M.]

HIGHLAND BEAUTY APPLE.—Rev. E. P. Roe, sends us again some of these. On two former occasions that we received samples we could not recommend that it be added to our already large list of kinds. These, however, give us a better opinion of it. They are larger and more beautiful than samples formerly sent, and a flavor that is very agreeable. If they are generally as good as these, and the tree good in habits, we think, large as the good apple list is we may yet add this one more.

GREGG RASPBERRY.—Mr. Bassett, Hammonton, N. J., says:

"I planted a few of these in the spring of '79 and they all killed to the ground the following winter, while in situations but little more sheltered, gladiolus, dahlias and even tuberoses and Madeira vines went through sound. The soil was quite sandy and might have been unfavorable to the proper ripening of the wood, but the canes always seem to be of a soft spongy texture and a few berries which were produced on the new wood were dry and tasteless compared to some other black-caps. I consider Seneca Black the best flavored berry of the family and it is hardy and a strong grower, but no *prominent nurseryman has tried to push it*, and consequently it has almost dropped out of notice."

[It would be well worth while inquiring why these plants had so low a vital power as was experienced here. That the black-cap raspberry should be "tender" any where in the United States can only come from the wood having been weakened by some local cause. We should certainly look after some fungoid or minute insect parasite in connection with such a result.—Ed. G. M.]

LETTUCE NELLIS' PERPETUAL.—We have the following illustration of a new lettuce under the above head, but no description of the advantages claimed for it. It is, however, such a distinct looking kind that it is worth noting. The value of a lettuce is in the quantity of its whitened parts. On this account one which curves inward is usually more acceptable than one which spreads out as this does. But it may have advantages in other respects which the cut does not exhibit.

FORCED TOMATOES.—On the 15th of January we had a sample of tomato which weighed one pound and half an ounce; and a fine cucumber twenty inches long, from Mr. James Paget, gardener, to Senator Cameron. We understand that the houses are full of these handsome tomatoes and cucumbers, and that it is the fifth successive year that the houses have yielded these good crops. Of the tomatoes, the writer says: "I could pick 75 to 100 pounds to-day." It is a magnificent specimen of good gardening skill.

FORESTRY.

COMMUNICATIONS.

SUMAC.

BY W. F. BASSETT.

In reply to an inquiry at p. 29 some time since, the GARDENER'S MONTHLY stated that Rhus copalliina was not the variety used for tanning purposes; but I find in Appleton's Cyclopædia, edition of 1879, that in Virginia the smooth, Mountain (copallina) and Staghorn are collected indiscriminately, and that American Sumac yields 15 to 20 per cent. or more of tannin, while the European yields 30 to 35 per cent. when not adulterated with other leaves. There are some other facts of interest relating to the manner of collecting and preparing, in that article, but I will leave it for the editor to judge whether they would be acceptable to the readers of the GARDENER'S MONTHLY. [Is not the Rhus glabra the "smooth sumac?"—Ed. G. M.]

SUGAR FROM THE BUTTERNUT.

BY CHAS. E. SMITH, PHILA.

In the GARDENER'S MONTHLY for January, Editorial Notes, page 20, you speak of the sugar-bearing quality of the sap of the butternut, Juglans cinerea, and ask if any of your readers know anything about it. I can answer for one. It produces as much sugar as the sugar maple, of a very dark color, but the sugar is reported a purgative a drastic as senna and manna.

[In addition to the above, we have this from Mr. W. F. Bassett, Hammonton, N. J.—Ed.]

"Sugar from the butternut. I have been informed by those who had tried it, that the sap of the butternut yields a large amount of sugar, but that it is decidedly purgative and rather harsh in its operation."

EDITORIAL NOTES.

FOREST FIRES IN NORTH CAROLINA.—Referring to Mr. Meehan's point that the permitting of underbrush is the main source of the power of forest fires, Mrs. Mary Bayard Clarke, the distinguished poetess, says in the Raleigh *Farmer and Mechanic*:

"Night after night, every fall, we in Newbern can see across the Neuse river the glow of burning woods, and this winter's experience, joined to Mr. Meehan's report, has set some of us thinking whether it would not be better for our legislature to take the matter in hand and devise some means, more effectual than any yet tried, to preserve our forests from devastating fires and the almost equally devastating girdling process,"

FORESTRY IN THE OLD TESTAMENT.—The editor of the *Farmer and Mechanic* says:

Apropos of Mrs. Clarke's letter on the timber supply of this State and country, we note a verse of Scripture which seems to indicate that tree-planting was a well recognized practice in even the oldest times. In Ecclesiastes, the Preacher saith—"I made me pools of water wherewith to water the wood (or grove) that bringeth forth trees."

THE BLACK WALNUT IN EUROPE.—It is remarkable how long it takes for a good idea to travel from one country to another. The black walnut was introduced into England from America in 1656, but the fact that it is a far superior tree for timber to the old English walnut, has only recently been recognized. It is not only said to be a better timber, but to grow in ten years as much as the other will in twenty. Large quantities of the walnut logs are sent to Liverpool almost weekly by the American Line of Steamers from Philadelphia, and this fact has probably induced lumber men to take note of how well the tree itself grows there.

WHERE OUR FORESTS ARE GOING.—To make shoe pegs enough for American use, consumes annually 100,000 cords of timber, and to make our lucifer matches, 300,000 cubic feet of the best pine are required every year. Lasts and boot-trees take 500,000 cords of birch, beech and maple, and the handles of tools 500,000 more. The baking of our bricks consumes 2,000,000 cords of wood, or what would cover with forest about 50,000 acres of land. Telegraph poles already up represent 800,000 trees, and their annual repair consumes about 300,000 more. The ties of our railroads consume annually thirty years growth of 75,000 acres, and to fence all our railroads would cost $45,000,000, with a yearly expenditure of $15,000,000 for repairs. These are some of the ways in which American forests are going. There are others; our packing boxes for instance, cost, in 1874, $12,000,000, while the timber used each year in making wagons and agricultural implements is valued at more than $100,000,000.—*Fishkill Standard.*

FOREST FIRES.—The Department of the Interior has issued a circular in connection with the census office, asking for information in regard to the cause and extent of forest fires, with a view to legislation. We hope that those who receive the blanks will give the matter their serious attention, and that those who may have any information or suggestion, and get no circulars, will apply to General Walker or Professor Sargent for them. The matter is of especial concern to those interested in forest culture; for forest fires constitute the great enemy of the forest planter. For our part we are satisfied that the great feeder in many cases of forest fires is underbrush. Since the report of the editor of this magazine as State Botanist, to the Pennsylvania State Board of Agriculture was made, he has had the opportunity of examining immense districts of timber in Indiana that were not overcrowded, and had no underbrush whatever under them. Indeed there was a fair quantity of wood grasses growing under the partial shade, which afforded tolerable pasture for the cattle running under them. In one case, and this is the point of this paragraph, a small piece of wood with dense underbrush, had fired, and burnt clean out, but stopped at the boundary of the open wood. Now if this be the general fact, and we believe it is, that an open wood will not build a serious fire, the "legislation" necessary becomes very clear. If one man loses his wood from the firing of his underbrush, let him lose, and if his fire should happen to cause loss to any one who has no wood of his own, or to a wood that is kept clear of underbrush,—for a fire under great headway might do it,—the owner of the brushy wood should be made liable for all damages. It is all very well to look after the man or the railroad that starts the fire, but the man who leaves gunpowder lying loose around should be held responsible as well as the one who applies the spark.

SCRAPS AND QUERIES.

TYPOGRAPHICAL ERRORS.—So far as we know the GARDENER'S MONTHLY is one of the few magazines that is not ashamed to correct typographical or other errors, no matter how small they may be. The disinclination to do this often leads to the propagation of grievous errors, and leads to no end of trouble. Here before us is a letter from a correspondent, asking how to preserve walnut seeds in germinating condition for several years. The inquiry is based on a forestry article from a Western agricultural paper, and which has been widely copied, in which the author is made to say that he purchased thirty bushels of black walnuts, which were three years old when he purchased them, and two-thirds of them died within two years afterwards. Our correspondent says that he could never get a walnut to grow after it was more than a year old, and he wonders how the germinating power is preserved so long. If, however, we give the sentence a careful consideration, we can see that there has evidently been a typographical error. "Thirty thousand" has been printed as "thirty bushels." This error must certainly have been seen by the author of the article, and, judging by what we know of sensitive correspondents, the attention of the paper probably called to it. Yet rather than endure the little mortification of admitting and correcting the error, the whole community is allowed to believe that walnut nuts will retain their vitality for several years.

THE BLACK WALNUT.—The *Gardener's Chronicle* says:

"In connection with the subject of the uses of black walnut wood (Juglans nigra), referred to in the *Gardener's Chronicle* for August 28 last, p. 263, we have recently received information from an undoubted authority that American black walnut is of no use for gun-stocks, being too short in the grain, besides being gritty; and that the Americans even, who make some of their gun-stocks out of it, prefer to buy for best work English, Swiss and Turkey wood."

Knowing that most of the guns we have seen had black walnut stocks, we were rather surprised at the expression "no use for gun-stocks;" and handed the paragraph to one who has been largely in the gun business, and give herewith his reply:—

"Perhaps one per cent. of the guns made in the United States have imported stocks. The government works and all the large factories using machinery, such as Colts, Winchesters, Sharps, &c., use American wood. It is only the small gunsmiths who make single guns to order who use imported walnut, and then only for fine work. The trouble with American walnut is that the grain is too open, not that it is too short. Occasionally magnificent stocks are cut from American wood, but then they are harder to work than the Italian walnut, which cuts very easily, and is well adapted to hand tools; its slow growth makes it very close grained, which

is another advantage. A wholesale dealer in arms, selling some thousands of rough stocks in a year, may include, perhaps, a few dozens of the imported goods. These are cut in the Appennines principally, the wood being better than British wood, which can scarcely be had, the supply of walnut in Great Britain being practically exhausted."

NATURAL HISTORY AND SCIENCE.

COMMUNICATIONS.

NOTE ON BEAUCARNEA.

BY SERENO WATSON, BOTANIC GARDEN, CAMBRIDGE, MASS.

I see in your last number of GARDENER'S MONTHLY a query about Beaucarnea. You will find all about them in Trimen's Journal of Botany Vol. X, pp. 296 and 323; in my Libiaceæ, 218 and 246, and in Botany of California,—Vol. II, pp, 162. I have recognized the identity of the genus with Nolina of Michaux.

It is not Amaryllidaceous at all, as you state, but with Dasylirion forms a peculiar Liliaceous tribe confined to Mexico and our southern and south-western territory.

The species mentioned by S. W. M., are probably garden forms of B. recurvata of Lomaire.

ENGLISH NAMES OF PLANTS.

BY A. VEITCH, NEW HAVEN, CONN.

I have not seen all that has appeared in *The Garden* on the English names of plants, but from what has come under my notice it would seem that greater zeal than discretion is being manifested in assailing the nomenclature which, with some drawbacks, has served its purpose admirably for many years. The advocates of English names may hold that a scientific nomenclature is indispensable to botany in its largest sense—the popular being good only for home use—for they do not seem so far gone in prejudice against Latin and Greek as not to believe that those languages are more capable of being compounded to express the great qualities and characteristic traits of plants than the English. They admit this by making large use of them in their published lists; the English names, so far as are known, being placed in the first column against the scientific in the second; and but for the support they thus receive many of them would be unintelligible, as they merely express the color of the flowers, the natural habitats of the plants, or the countries whence they come; and in many instances other species in the same genus are equally entitled to the same designations. English names are also, in many cases, misleading,as Jasaminum grandiflorum is booked as Catalonian Jessamine, when it is not a native of Spain but of the East Indies; Gardenia Florida as Cape Jasmine when it is not a Jessamine at all, nor does it come from the Cape but from China. And then again, there are many which are extremely whimsical, such as Johnny-jump-ups for Pansies, Red-hot Poker for Tritoma; Dutchman's Breeches for Dielytra; Jacob's Ladder for Polemonium; P. reptans, therefore, should be Creeping Jacob's Ladder; P. coeruleum, Blue Jacob's Ladder; the one conveying a false idea of the uses of a ladder, the other unnecessarily specific as to color. We would also have for P. gracile, Slender Jacob's Ladder; for P. bursifolium, Shephard's Purse-leaved Jacob's Ladder; for Arum triphyllum, Three-leaved Jack-in-the-Pulpit, and by way of distinguishing this species from Dracontium, Green Dragon Jack-in-the-Pulpit. But it would be impossible to enumerate all the absurdities likely to creep into an English nomenclature, made more objectionable still by the verbosity and indefiniteness inseparable therefrom.

But, say the advocates of the English method: "The employment of technical names is pedantic, and none but those who wish to appear learned encourage their use." This objection does not amount to much although applicable to a numerous class of both Greeks and Barbarians; and those who raise it might know that in every other human pursuit the same weakness is apt to show itself. The weakness being in human nature, similar displays of vanity would be common were the advocates of the English system to have their way, as that upon which it feeds thrives equally well in an English as in a scien-

tific dress. But the fact that pedants will have their way is no reason why one system of nomenclature should be substituted for another, when upon the whole the new is open to graver objections than the one they seek to supplant.

We do not object to English names when they can be advantageously employed, but that is no more than what now generally prevails, and there is no botanical writer of distinction who is not careful to give the English or popular names of the plants they describe so far as they know them. Such was the practice of W. J. Hooker. Such is that of Dr. A. Gray; but above all is this carried out in the works of J. C. Loudon. Those gardeners, therefore, who have not been favored with a classical education, owe much to Loudon for placing within easy reach the means to overcome the obstacles which stand in the way of understanding the botanical names of plants; and those who would substitute another nomenclature for the one he has done so much to popularize, might do well to consider the disadvantage which would result to mere English scholars by the change. It is true many of those names are hard to pronounce and anything but euphonious, but they are mostly significant and convey an amount of information regarding the plants to which they are applied that could not be readily obtained from any other source. Instead, therefore, of educated men bestowing their attention upon what, to say the least, might prove of doubtful advantage, would it not be better to advocate the issuing of revised editions of Loudon's Hortus Brittannicus and Encyclopædia of Plants, with supplements bringing them up to the present time? We say this from the belief that more good would result to gardeners from the undertaking than could possibly come from any catalogue of English names, however carefully gotten up.

THE CAROLINA JASMINE IN TEXAS.

BY MISS M. K., MARSHALL, TEXAS.

In your first number of "Native Flowers and Ferns of the United States," I noticed that in describing the yellow jassamine, you mentioned it was not found in Texas—a mistake I wish to correct. It grows wild in abundance in this county, and also Panolas, an adjoining county. And you also stated, it was not found west of the Mississippi river. In this you are again mistaken, as it grows in quantities in Louisiana in the swamps on Red river. In February and March, in Bossier Parish, the woods are fragrant with it. The small plants do not bloom, and it is only after several years' growth that it blossoms. After blooming it is a rapid and vigorous grower, attaining great size, have frequently seen it cover trees and two-story verandahs; therefore it is not at all suitable for a basket plant.

I hope you will excuse the liberty I have taken in writing, but it was not in justice to our State or yourself to allow such a decided mistake to remain uncorrected.

EDITORIAL NOTES.

A Root Museum.—A Germantown inn-keeper has become famous by collecting roots which bore any resemblance to any being, spiritual or earthy. They are slightly touched up here and there, and are much more like the suppositious beings they are named for than things on rocks or in caves that tourists often go miles to see, and take years afterwards to talk about.

Trichostema Parishi.—Under this name Dr. Geo. Vasey, in the *Botanical Gazette*, commemorates the services to botany of Mr. S. B. Parish, of San Barnardino, well known to our readers as an entertaining and instructive correspondent. The genus Trichostema may be known to some of our readers as containing the pretty wild flower, "Blue Curls."

Adaptation. — The word "adaptation" is coming into use by some writers on science, evidently without a clear conception of its meaning. Thus a writer in the *American Naturalist* says, "I have seen humming-birds visit the columbines, and they seem especially adapted to fertilize them." In any fair construction of this expression it would mean that there was some special design by which the organs of the humming-bird and the structure of the Aquilegia should be fitted to each other. But the writer could not seriously mean this, for he would remember that the Aquilegias are "adapted" to boreal regions, while the humming-birds are "adapted" to sub-tropical climes, where aquilegias do not exist. Even in garden culture most of the spring flowering Aquilegias are overblown long before the humming-bird arrives, and the ones seen in the columbines must have found only a few belated flowers. If we are to understand "adaptation" in the same sense as we might say a rattan is adapted to an offender's back, there might be no objection; but when

the word is used by teleologists, the general intention is to impress us with some special design or mutual relation between the means and the end,—that one was in some sense specially created for the other. Scientists, above all others, should be careful in the choice of words.

A NEW APHIS.—A new species of Aphis, supposed to have come from Japan, has been discovered on Japan Lily plants by Mr. Peter B. Mead, of New York, and has been described and named by Mr. Joseph Monell, of St. Louis, Siphonophora Lilii. It is thus described:—"General color yellow; basal half of abdomen brownish red; Antennæ mounted on conspicuous tubercles. Style yellow, a little over half as long as the nectaries. Nectaries dusky, yellowish just at base, about four times as long as the tarsi. Venation normal. Length 2mm. Alar expanse 7mm. On flowers of Lilium.

COLOR OF FLOWERS.—These are dependent on the action of tannin on the chlorophyl granules. This is the latest belief.

ENGLISH NAMES OF PLANTS.—Mr. Veitch, in another column, presents some views on this question; which, coming from an intelligent florist, will command attention. There is no doubt but when we get long names, with sounds uncouth to the popular ear, we are glad to get out of it by a simple English one. We all thank the man who first gave us "Herb Robert" for Geranium Robertianum, and the "Sweet William" for Dianthus barbatus. But it is no less true that these names grew out of some popular point, and were not made deliberately, as botanical names are made.

All attempts to make such names have failed unless there were some evident appropriateness in or about them Mr. A. J. Downing's suggestion that Forsythia viridissima be called "Golden Bell," has been generally adopted here, but we are not sure it has in England. It is just here that the trouble arises. There is a recognized authority in botanical names, and we get only the one as a rule. Any one may give a common name, and we may have a hundred. The choice lies between an uniform name, sometimes hard, and a Babel only worse confounded.

BARREN CHESTNUT TREES.—It has been noted by several observers in Illinois and Indiana, that when a chestnut tree is alone by itself—a mile or more from other trees—it does not produce fruit. The chestnut is bi-sexual. The first flowers which give the pretty white cast to a chestnut wood are wholly male, and fall before the female flowers on the same tree open. But where these flowers are formed there is also a string of males above them, and they have been taken to be the flowers which fertilized the female flowers at the base of the spike. These observations seem to show that this is not the case. The fertilization seems to be effected by the pollen from some other tree, when fertilized at all,—and this leads the curious inquirer to wonder what the second crop of male flowers were formed for. Have they no use in the economy of the individual tree?

SCRAPS AND QUERIES.

GRAFT HYBRIDS.—Professor Beal writes:—"Not long ago I sent you a copy of my report. You complimented it, and made a note of my reference to your experiments on 'Graft Hybrids.' Of course we know the result would only be a variety if the two halves united to form a new thing, but you had used this term, and I used it in referring to your experiments. I was almost about to apologize for quoting you wrong, when the GARDENER'S MONTHLY for January came, and in it, on page 29, I read your remarks, and looked back to see what you had said.

"'Mr. Meehan claims to have produced graft hybrids from the split buds of apple trees.' The transition from 'one hybrid' to 'graft hybrids' is not much, but it is just enough to give the impression that 'graft hybrids' is not an uncommon event with the editor of the GARDENER'S MONTHLY, whereas *one only successful result*, (italics mine) and that a very small one, attended his experiments.'"

"I turned back to the volume for 1876, page 306, where you print your paper read before the American Association. You head it 'Graft Hybrids.' Farther on you say, "twelve of these were grafted, three grew, two of these have fruited; neither are Rhode Island Greenings, and the two are unlike each other. One of these has a flower like the Rhode Island Greening, and the flower of the Red Astrachan is rosy and in many ways distinct from the large white one of the Rhode Island Greening; but the fruit is in many respects similar to that of the Red Astrachan. The second variety has the flower similar to that of the R. I. G., and the fruit somewhat the color of the Red Astrachan, ripening about the same time, but is but half the size, very much flattened, and with a slender stem near two inches long, and as much like that of a Siberian Crab as can be. I do not know that there is any pomological value in the new varieties of apples I have raised, but I am delighted with the scientific results, proving that hybrids

by bud-grafting is more than a popular delu sion.

"I fail to see the force of your criticism on my mention of your experiments. I think I quoted you fairly." W. J. BEAL.

Agricultural College, Lansing, Mich.

[The title of the paper "Graft Hybrids" was intended to mean "A Contribution to the Subject of Graft Hybrids," and not that it was to detail various experiments; for, as the quotation of our esteemed correspondent shows, the results of but a single experiment were given. If the explanation as here given by our correspondent had accompanied the quotation there would have been no place for criticism. As we read the quotation it left a different impression on the mind than would be by the reading of the extract quoted.

Our correspondent is critically correct from his standpoint. No one would impute his fairness in any case. At the same time it is but right that it should be understood that but one experiment was made, and that though there was a slight variation in the result, the variations were for any practical purposes the same.

It may be of interest to note here that the grafts referred to were placed on bearing trees of other kinds. In one case a sprout came out below the graft unobserved, till it had injured the graft so that it never recovered. The other has continued in successful growth, and still continues to produce flowers pure white, precisely as in the case of the Rhode Island Greening, but with the fruit of no more difference between those of the tree of Red Astrachan it was taken from, than we expect to find in different apple trees without any "hybridization." The action of the union affected only the flower. It shows that "graft hybrids" are not wholly a popular delusion, but "graft hybrids" in the true pomological sense, were not produced by the writer. —Ed. G. M.]

CARPENTERIA CALIFORNICA.—T. S. P., Kingsbury, Cal., writes: "Quoted from the *Garden* in the January number of the HORTICULTURIST, it is said that the Carpenteria Californica is an extremely rare plant even in its native habitat. I have been unable to find it even where Mr. Saul mentions as its home. We have what Prof. Rattan, in Popular California Flora, describes as Mock Orange (Philadelphus Gordonianus), but which the *Garden* says is not the same. I have watched for it but am unable to find it."

[In the "Botany of California," just issued, there is an additional note that the Carpenteria had been found by Dr. G. Eisen at King's Run, Fresno County, Cal. It was first found on the Fremont expedition, and the poor specimen then collected remained for a long time all the knowledge botanists had of it.—Ed. G. M.]

CHAMOMILE AND PYRETHRUM.—W. writes: "Will you please inform us whether or not the Pyrethrum roseum is a 'Chamomile.' The case is this, Pyrethrum roseum is known in commerce as the Persian (or Caucasian) Chamomile. "Chamomile" flowers are admitted into the ports of the United States free of duty. Pyrethrum roseum was formerly admitted free of duty, but lately, and without change of law, at the port of New York, a duty of 10 per cent. is charged. If the Pyrethrum roseum is a Chamomile flower it is not properly chargeable with duty. We refer throughout to the dried flowers. If you can, without inconvenience to yourself, give us the information for which we ask, you will much oblige."

[This is a case showing the confusion that might arise from a careless application of English names. The United States undoubtedly intended by Chamomile, Anthemis nobilis, and never dreamed of admitting Pyrethrum roseum under that name, and would no doubt decide as we should. Yet all chance of a dispute would have been avoided if the botanical name had at least been given with the other, thus "Chamomile (Anthemis nobilis)."—Ed. G. M.]

LITERATURE, TRAVELS AND PERSONAL NOTES.

COMMUNICATIONS.

NOTES AND QUERIES—No. 22.

BY JACQUES.

Quinine.—At length we have the results of the care for the future in regard to Cinchona barks. An official report to the Indian government for 1879–80 is published, regarding the Cinchona cultivation in Bengal. In that year the extended cultivation reached 750,000 young trees, and a crop of 361,590 pounds of dry bark were harvested. The result is a saving of $75,000 more

than the plantations have cost from their origin, including compound interest at four per cent. per annum. These results are gratifying, and in the future large savings are expected. We should like to see our government do something of the kind, and begin also the cultivation of the useful cork tree.

A lady skilled in painting plants on pottery, plates, &c., asks what series she shall take up as a commercial affair? We reply unhesitatingly, let her paint all the pitcher plants, including those that consume insects, &c. A series of crockery portraits of these would not only be truly handsome, but the story they would tell would be commercially profitable. Consider the first set bespoken.

The enemy of the vine.—Phylloxera, according to an article in *Nature*, has been conquered; it was feared it would extend to graperies under glass and become universal, but a Mr. Dumas (not the novel writer), after systematic trials, has found a combination of sulphide of potassium in combination with carbon disulphide, forming the sulpho-carbonate of potassium, is a perfect, though so far an expensive remedy,—"an actual statement of fact." This is most important. See *Nature* 580, Dec. 9, 1880.

EDITORIAL NOTES.

Burning of Horticultural Hall, Philada.—A church adjoining Horticultural Hall, took fire on Feb. 1st, and burnt out some $170,000. The roof of Horticultural Hall took fire, and the whole upper floor was destroyed. Some $50,000 of damage was done. The valuable library of the Society was not removed, but escaped injury, except a little from water. Mr. W. L. Schaffer, the President of the Society, who, as our readers know, now owns the hall, has not yet decided to rebuild it immediately.

The church fire originated after the same old story. The iron of the heater had but one course of bricks between it and the floor joists. It is amazing that bodies of men associated together in churches and such like, to make people better and wiser, do not see that knowledge of earthly things is as important to human beings as things spiritual. We will venture to say that if any one interested in the management of this church had been a careful reader of a $2 horticultural magazine, the body would not now be under the necessity of raising $170,000 to repair damages, nor would the Horticultural Hall have met with its misfortune. Our readers know that it does not require wood to be in contact with fire to burn in time. It may not burn this year or next; but it chars gradually, though the charring work is not seen; and further, it should be known that heat confined is always more dangerous to adjacent woodwork than when the air has a chance to circulate about it.

This beautiful hall is an illustration of the old adage, "Give a dog a bad name, &c." About the time it was building a scurrilous sheet was refused some advertising which it demanded. It at once set forth that the building was "unsafe," that its "acoustics were bad," that it was "unfortunate." Respectable papers not perfectly understanding the real situation followed in the cry, and the result has been that while the building was in every respect as great a success as such buildings generally are, it came to be looked on as really having something weak about it, with the natural result of financial misfortune. It is indeed singular how long a fictitious character of this kind can be made to stick. The daily papers of the best class, in their "Obituaries" of the burnt building, had well-meant notices of its "failures." It is no encouragement to its owner to rebuild under these circumstances, and if Philadelphia does not in future have its fine hall for public meetings and so forth to boast of, it will only be from the ill-advised course of its respectable newspaper press, which has been led unwittingly into a false track.

Execrable Writing.—We puzzled over a letter fifteen minutes that ought to have been read in two, but when we got to the end and came to "excuse haste," it was too much. "Because the lunatic has no time to write plainly, is that any reason why he should take the time from me" exclaimed the editor, as he threw the note down on the library table. Soon after a gentle voice whispered, "well, I know some editors who do not write plainly sometimes, and one especially; and it is a pity too, for he can write so prettily when he has a mind to." We have not, therefore penned the savage paragraph which was at first in mind, but we do hope that "every body" will try to write plainly.

Railroads and the People.—A friend sends us *Scribner's Monthly* for December, with an

article by Thurber under the above title, asking that we call attention to it.

The point of the article is that the charge of the public highways is a legitimate part of the duty of the State. That when a new public road is to be built, the State provides the road, and that it is free to all alike. If the State does sometimes give up some control to the roads to turnpike companies, it is only with the understanding that all shall be treated alike. The man who drives through a turnpike with an empty horse and wagon, pays as much toll as one who has a full load; and the man who drives over the road a dozen times a day pays just as much as the one who goes through but once a year. The article contends that railroads should be highways of the same character, but they are not. They are conducted like any ordinary business. The man who can ship a thousand barrels of oil, gets a lower rate of freight than the man who can send only ten. Hence he can sell his oil cheaper than the small shipper, and the result is that all small operators are crushed out, because the railroads with their natural business ways of looking at things, give a greater advantage to freight by the wholesale, than to freight by the retail.

It then becomes a national or State question whether it is the interest of the people of the whole State to have all these small concerns crushed out by a few very strong firms or companies. This seems to be the question which the author discusses.

HUNTING A GARDENER. — A correspondent, "Rambler," sends us an amusing account of "a gardener in search of a place." He was unlucky enough to fall in with people who understood a "first-class gardener" to be one who could "groom horses," "run errands" and the like, and the usual questions under such circumstances were put to him. There always have been these ignoramuses in all ages, and we fancy they are not confined to people wanting gardeners. They are of a par with those who thought the "Mill on the Floss" was a work on prize fighting.

JEAN LIABAUD ROSE.—The note in our last was based on a misreading of the MS. Our correspondent wrote Jean Liabaud, not Liaband.

DR. ASA GRAY.—By letters recently received, Prof. Asa Gray was very happy at Kew. His chief labor is in investigations among the compositæ. He expects to return to America in the autumn.

PROF. ALPHONSO WOOD.—This distinguished botanist died on the 4th of January, in his seventy-first year. Few men have done more to make American botany popular than he. His works—marred somewhat by typographical errors—were in universal use as text books, and while the more careful and strictly critical botanists have their useful field of work which progressive science finds indispensable, it fell to Prof. Wood's field to make this carefully gathered knowledge widely distributed. His rank was not, perhaps, in the highest fields of botany, but it was no less useful, and there are many hundreds of people deriving pleasure in life from botanical studies, who would never have experienced these delights but for his labors. We are quite sure there are few botanists whose decease will be more widely or more sincerely mourned than Prof. Wood's.

DIE CULTUR DES CHAMPIGNONS. (The culture of Mushrooms), by F. C. Heinemann Erfurt, Prussia.—At the present time there is a great interest felt in mushroom culture in the United States, and for those who understand the German language, this little book will be very useful. As a sample of the whole, we give the following translation of one chapter:

"The most favorable places for the cultivation of the edible mushroom are dark cellars, outhouses, vaults, &c., which can be protected from drafts of cold air, and in which a constant temperature of from 10° to 14° R., can be steadily controlled, and in which extremes of moisture and dryness can be regulated by the cultivator. Stables in which animals are quartered are specially favorable on account of the animal heat and the emanation of ammonia which seems to be very favorable to the development of the fungus. Beds in such localities can be made on shelves one above the other from ten to twelve inches in thickness, if the necessary temperature is kept up by the heat of the animals or other artificial means. Where such sources of heat are not at command, the beds must be of a thickness of from twenty-four to thirty inches, in order to secure to the growing plants the necessary height of surrounding temperature. Any time of the year is suitable for the establishment of such beds, providing means are at command to regulate the necessary degree of temperature.

beds and compactly put down so as to be of equal consistency or solidity. After the finishing the beds should be covered with cut straw four or five inches in thickness, so as to hasten on a higher temperature, which in a few days will have reached from 15° to 16° R., which is high enough for setting or planting the seed, provided it is still rising; but must never reach above 26°R., or else the spawn will burn up.

Planting.—If the beds have attained a temperature of 15° R., they can be planted according to the quantity of spawn you have; if plentiful, three by four inches, otherwise six by six or eight by eight, about one and a half to two inches deep, in square holes, so as to press the excavated manure on top evenly in order to keep a smooth surface of the beds. After planting, the temperature and moisture of the beds must be watched, so as not to overrun 24° R., or to becomes too dry for the young spawn to grow. The cut straw should be applied after planting so as to be better able to keep up the temperature to its required degree. In six days after planting the beds may be examined, and if found that the mycelium has spread through them the planting is a success; otherwise, if in six or eight days longer no evidence of growth is seen, the plantation may be considered a failure, and you have to commence anew.

If a success, after twelve or fifteen days the cut straw can be removed, and the beds must be patted with a shovel, so as to have a smooth and compact surface, on which a layer of rich loam must be placed to the depth of two or three inches, which is lightly pressed on with the spade or shovel which completes the plantation, and if in twelve or fifteen days after this small white spots are seen on top of the beds, you have evidence of success, and the beds must now be kept moist on top, and when they show signs of dryness must be moistened with warm water, which can be applied with a whisk or brush.

In gathering the crop care must be taken not to pull out too much of the soil and young plants, which, if pulled out, ought to be planted again. The most suitable time to harvest is when they are from three-quarters to one and a half inches in diameter.

Roses.—Catalogues on our table are so exceedingly numerous that it is impossible to devote space to the friendly notices we would take to give them, unless they happen to have some special claim to public interest. At the present time when the rose is occupying such a large share of public attention, it is a public service to

note the remarkably full and carefully prepared rose catalogues of Ellwanger and Barry, and of the Dingee Conard Company. These firms have done wonders to give the rose the great popularity it enjoys at present.

THE PEACH AND ITS DISEASES.—By John Rutter. Published by the author, at West Chester, Pa.—Mr. Rutter shows by historical records, that the short-lived character of the Peach in some locations has been a fact for at least a hundred years, and that the "yellows" had probably to do with this character. But Mr. Rutter does not believe that there is anything against the permanent character of the tree if its character is well understood; and in this work his "main object is to satisfy the agricultural interests of Pennsylvania that peaches can be grown in the State on a scale commensurate with the demands of our cities and towns, in orchard culture, in larger quantities than they are now or can be raised in the most favored districts of Delaware or Maryland, and can be sent into our markets in better condition and at a much larger profit." It may be said here that Mr. Rutter has been one of the most successful peach growers that ever went into the business in the vicinity of Philadelphia, and no one can read the thoughts of a successful man without profit. Not only those who live near Philadelphia, but peach growers everywhere will do well to read Mr. Rutter's little book. He claims that "if (his) instructions are followed by farmers and fruit growers generally, the day is not far distant when eastern Pennsylvania will supply the markets of Philadelphia and New York with better peaches than now come from the celebrated peach districts of Delaware and Maryland."

SUGAR BEET.—Report on the culture, by Wm. McMurtrie, Chemist to the Department of Agriculture, Washington, D. C. Published by the Commissioner of Agriculture.

The student of history knows how hard it is to get a people out of the beaten way. One of the greatest blessings to France is the beet sugar industry. Sugar from the beet was known for hundreds of years, but no amount of attention to it led to its universal culture. At length England to punish France put an embargo on West Indian or cane sugar. Napoleon's government set to work with the beet, and beet sugar manufacture rose to the dignity of an established institution. We are not quite in as bad a situation here; but a very small portion of our territory is adapted to cane sugar culture. We are dependent on other countries for the bulk of what we use. There is no doubt but we could make sugar just as well and just as cheap from the beet. The only way to introduce it is by continuous effort in keeping the facts before the people. Individuals cannot do it. It is a legitimate task for the nation, and it is to the credit of General Le Duc that he sees the importance of the subject, and what is the real mission of the government in regard to it. Advantage was taken of the Paris exposition to instruct the chemist of the Department to look closely into everything relating to the subject, and the present publication is the result. The chemistry, culture, machinery, all receive attention.

THE GARDEN ANNUAL.—By W. Robinson, editor of the *Garden*, London.

The leading feature of this "almanack" is its list of gentlemen and ladies who have tasteful gardens and keep intelligent gardeners, and of the gardeners who fill these places. Of these about 5,000 each are given, which affords a fair idea of the number of intelligent patrons of gardening in the British Isles.

THE FLORAL WORLD.—There is no better evidence of the growth of taste for flowers than the number of small, cheap serials devoted exclusively to flower culture. We have noted these as they have appeared, and now have another added to the list, as above, edited and published at New Brighton, Pa.

SCRAPS AND QUERIES.

OLEOMARGARINE.—J. C. writes on subject of the pronunciation of oleomargarine: "Will you allow me to say that I think you are in error in your reply (in February's G. M.) to the question of a correspondent as to the correct pronunciation of 'Olio margarini.' There is a rule, and one, as I believe, without an exception in our language (nor so far as I know in any of the most generally spoken modern languages) which is that *g* before *a*, *o* and *u* is always hard, and only soft before *e* and *i*. The rule is, in our language, absolute. If, in any of the other tongues alluded to, the *g* is softened before *a*, *o* or *u* (a very rare circumstance) it is done by means of a *cedilla*, which makes another letter of it. The vulgar pronunciation of *margarine* with *g* soft is therefore unwarrantable, and manifestly incorrect."

HORTICULTURAL SOCIETIES.

EDITORIAL NOTES.

AMERICAN POMOLOGICAL SOCIETY.—The biennial meeting of the American Pomological Society at Boston, on the 14th of September approaches, and there is some inquiry for the volume of proceedings for the past session. It is but justice to Mr. Manning to say that he accepted the position of secretary very much against his inclination, and only when the Society urgently pressed it on his acceptance. The history of the Massachusetts Horticultural Society, just published, has occupied much more of his time than was anticipated, as all acquainted with literary work know to be generally the case. The volume will, however, be ready before the next meeting of the body, and, late as it may seem to be, will entitle Mr. Manning to the thankful consideration of members, who know of his many public services, and the hard labor they involve.

The Mass. Horticultural Society will hold its annual meeting on the 14th of September, at the same time as the Am. Pomological Society.

PENNSYLVANIA FRUIT-GROWERS SOCIETY.—Recognizing the advancing spirit of the age, this prosperous body decided at its last meeting, at Gettysburg, to be known in future as the State Horticultural Association. This appellation was adopted so as not to seem to conflict with the name "Pennsylvania Horticultural Society," the operations of which, however, are chiefly local. The meeting next year will be at Harrisburg.

MASSACHUSETTS HORTICULTURAL SOCIETY, MEETING OF FEBRUARY 5TH.—Among the attractions at the rooms of the Massachusetts Horticultural Society, W. C. Strong & Co. exhibited twenty blooms of varieties of hardy perpetual roses, the earliest and best ever seen at this season. It gives some idea of their excellence to say that they readily command the price of $1 each. In New York, about the same time, Mr. Henderson reported that the average wholesale price of General Jacqueminot was $75 per hundred.

NEW YORK HORTICULTURAL SOCIETY.—The following gentlemen were elected officers for the coming year: Samuel Sloan, President; J. Pierpont Morgan, Percy R. Pyne, Chas. Butler, E. S Sanford, Vice-Presidents; James Y. Murkland, Recording Secretary. The meetings will be held the first Tuesday in each month at No. 55 West 33d street, New York, at 3 P. M. From the report of January meeting, the following items will enable the outside reader to gather some information: Among the newer or scarcer roses exhibited by Mr. Jones, the Committee mention Madame Lambert, dark rosy crimson, somewhat like Bon Silene, but said to be generally much darker; Catherine Mermet, large deep rose, a splendid variety; Perle de Jardin, now so well known as to require no description; Adam, large delicate pink, Souvenir d'un Ami, somewhat of the color of Adam, but a shorter, thicker bud; Ma Capucine, not a very large bud, but of a very pleasing color—salmon orange. The Committee award Mr. Jones' exhibit a certificate of merit and a premium of $10.

Arthur Mayne, gardener to Mrs. M. J. Morgan, exhibited a lovely collection of orchids showing the great skill of that cultivator, nineteen varieties and species, among which were, Laelia anceps and Anceps Dawsonii, never before shown at their exhibitions.

Mr. John Reid again exhibited his new scarlet carnation, "Firebrand," which is undoubtedly a great acquisition in the line of colored carnations, being the brightest one known, and to all appearances an immense flower.

M. J. Edmonds, gardener to James McCreery, Esq., Inwood, N. Y., exhibited a dozen New York Flag Leek, which are very fine and large (about seven inches in circumference).

C. L. Allen suggested that it would be of great interest to members if we followed the example of the Massachusetts and Philadelphia Societies, and had a paper read at each meeting, discussions to follow, the reading and debate each to occupy fifteen minutes. After a short discussion, Mr. Peter Henderson offered to read a paper on "Rose Culture" at the next meeting, and his offer was accepted with thanks, after which the meeting adjourned.

February meeting. At this meeting the collection of orchids from Mr. Morgan was much admired. Among others it had an Angræcum sesquepedale major, the snowy waxy blooms of which were six inches in diameter. Ten of the members agreed to subscribe $5,000 each, to build a hall for the Society.

GERMANTOWN, PA., HORTICULTURAL SOCIETY.—The February monthly meeting had a good many items of interest. A beautiful specimen of Paullinia thalictroides rivalled many ferns in foliage; one might take it at first sight for a Maiden Hair fern. A specimen of the hybrid Amaryllis "Amy Lincoln," showed that this new class of plants has elements of great popularity. As indicative of good winter flowering greenhouse plants Chorozema cordata, Franciscea exima and Dendrobium nobile may be noted mong others present; though the last, a pretty orchid, requires a rather warm greenhouse. It may be well to note in connection with a double Poinsetta exhibited, that Mr. Kinnier, the grower, found it a very useful "cut flower" plant, from the fact that scarlet bracts can be had from it six weeks after the single one had gone out of use.

FIFTH REPORT OF THE MONTREAL HORTICULTURAL SOCIETY—From Henry S. Evans, Secretary.—The chief papers and discussions are on apples and grapes which give much valuable information on these kinds of fruit for which Canada is so famous. In a paper on the codling moth, Mr. Bowles tells us that the insect was brought into America from the Old World about the beginning of the present century, and that the best remedy found in Canada is picking up the fallen fruit, which fall, of course, because they have worms in them. The "hay-bound" system does not seem to have been tried there, but the numbers of cocoons which have been caught in this way, show that those which fall with the early fruit, are comparatively few. To keep down the moth both plans should go along together.

WORCESTER CO., MASS., HORTICULTURAL SOCIETY REPORT FOR 1880.—From E. W. Lincoln, Secretary. This is one of the most instructive reports of a genuine horticultural character that has come to hand. Worcester should be proud to have such an intelligent organization in its midst. Why do not more cities have such useful institutions. There is nothing tends to the real prosperity of a town like a real live horticultural society.

ANNUAL DINNER OF THE NEW YORK HORTICULTURAL SOCIETY.—This was attended by many ladies and gentlemen among New York's leading citizens. President Sloan claimed that it should be considered as a continuation of the old society started in 1822. He did not know why Scotch gardeners so loved flowers, when history recorded their country's chief product as thistles. The best after-dinner speech was by Hon. Chauncy M. Depew. He summed up the advantages of horticultural societies in the following pleasant paragraph, which we find in the New York *Tribune:*

"I met a man the other day who has been for the last forty years speculating in Wall street successfully, though he never gave me a point, and who spends his afternoons riding out. I said to him, "Why do you ride?" "Because," said he, "When a man is past fifty years of age the only pleasure left to him is to drive a horse." Now that man ought to join this Society, and then he would find, as Dinsmore and other eminent men have found, that whenever they have abandoned financial pursuits, and from the cares of Wall street have hidden themselves in their country seats and become familiar with the secrets of the garden, and with the culture of flowers, they have not only increased the pleasures, but have added ten years to their life and twenty years to their enjoyment. [Applause.] Now, these horticulturists are a social people, agregarious people. There is much said in English literature about the solitary English gentleman who broods upon his farm or country seat. But what we want is to build a country place, and get a first-class garden and then a first-class gardener. Yet all this amounts to nothing unless we are in the association of gentlemen such as I see around me—men who go up and down on the train and brag about what they have got. [Great laughter.] Mr. Sloan would sell his place at Garrisons for two-and-six-pence if he could not beat Jay Gould in his conservatory [laughter], and William E. Dodge may recall the foundation of this society, but the welfare of it is nothing compared with the fruits he has produced at Irvington that beat those that J. Pierpont Morgan can show up at West Point. [Laughter.] So the whole philosophy of the horticultural society is emulation, the [illegible] of ideas; in the interchange of communi[illegible] and knowledge a man improves by bragging that he has produced better flowers and fruits than his neighbor, and so teaches that friend something that he did not know before."

HORTICULTURAL ESSAYS.—The Massachusetts Horticultural Society has offered: For the best essay upon our native plants, adapted for winter culture for their flowers, $25.00; for the best essay on our wild fruits, with hints towards their amelioration and cultivation, $25.00; for the best essay on any subject in pomology, selected by the writer, $25.00; for the best essay on any subject in floriculture, selected by the writer, $25.00; for the best essay suited to appear in the transactions of the Society, on any subject selected by the writer, $25.00.

NURSERYMEN'S ASSOCIATION—The next annual meeting will be held at Dayton, Ohio, on the third Wednesday in June next. Mr. N. H. Albaugh of Tadmor, O., is president for this season.

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No charge for Boxes or Packing. Safe carriage Guaranteed.

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PERLE DES JARDINS,	The Finest New Yellow, - -	2.50	12.00
MADAME LAMBARD, -	Large Crimson Buds, New. - -	2.00	10.00
NIPHETOS, - - - - -	Pure White, Immense Buds, -	2.00	10.00
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CATHARINE MERMET,	Deep Rose, Extra Fine, - -	2.00	10.00
ALINE SISLEY, - - -	Brilliant Crimson, - - .	1.50	8.00
MARIE QUILLOT, - -	Snow White, Very Fine, - - -	1.50	8.00
BON SILENE, - - -	Beautiful Bright Red Buds, - -	1.50	8.00

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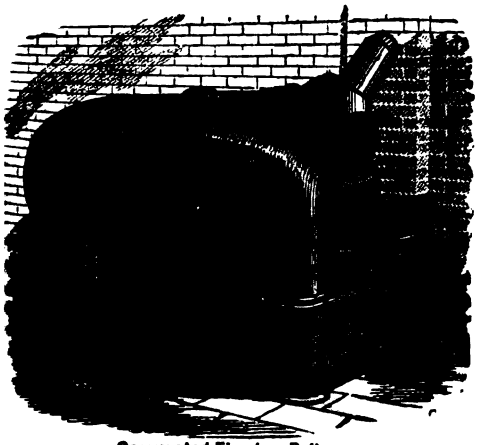

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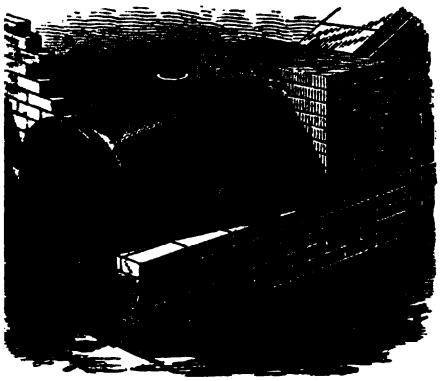

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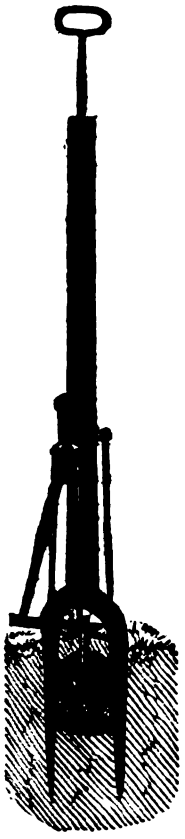

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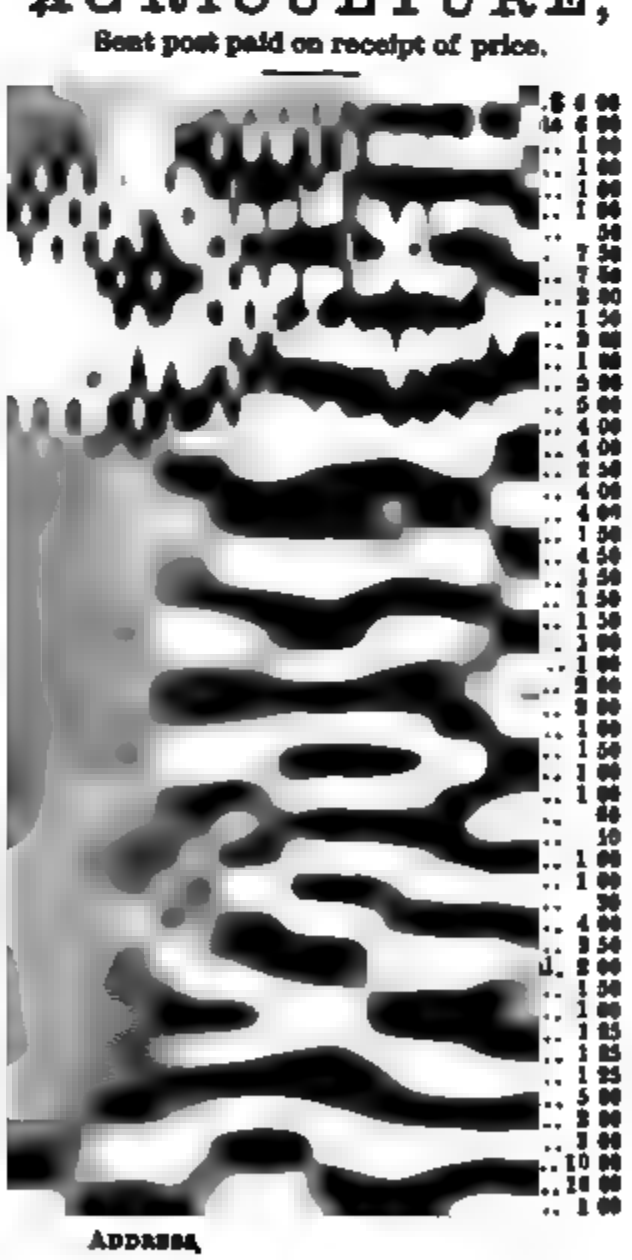

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HORTICULTURIST.

DEVOTED TO HORTICULTURE, ARBORICULTURE AND RURAL AFFAIRS.

Edited by THOMAS MEEHAN.

Vol. XXIII. APRIL, 1881. Number 268.

FLOWER GARDEN AND PLEASURE GROUND.

SEASONABLE HINTS.

When we come to "Seasonable Hints," it is almost impossible not to go over, again and again, ground that we have traversed before. Like the Sunday sermon it is the same old truths,—the same rules for conduct—but no less true because it is not new, nor less useful because it is old but true. In fact we have to hear the same things over and over again, for the same things do not strike us alike every time. How much we may profit by what we hear depends in a great measure on what we know already. To-day we hear something unintelligible, or which we do not believe; to-morrow, with more experience of our own, we understand, and find the point commends itself to our good judgment. So we will go over again with what we have often had occasion to say about planting trees, which is one which even the most experienced likes to read something about. Of course much depends on a good time to plant. Here, in the North, April is a good planting month. There is not much art in planting trees, though it is often much of a mystery. Not to let the roots dry for an instant between taking up and planting everybody knows, but everybody does not do it; in fact, everybody deceives himself. We have seen this distinguished individual leave the tops of trees exposed to the sun, with a mat or straw thrown over the roots, and think all was right; or heel in for a day or two, by just throwing a little dirt over the roots. This is a little good; but everybody's fault is, that although this may be ten minutes of good, he expects to get ten hours, or even ten days' value out of it, and thus he suffers more than if he had done nothing, because he forgets that the branches evaporate moisture from the roots in a dry wind, and the juices go from the roots through the branches, very nearly as well as directly to the air from the roots themselves. So with heeling in. The soil is thrown in lightly, or at most just "kicked" down. "It is only temporary," very few of the roots come in contact with the soil. They can draw in no moisture to supply the waste of evaporation, and thus they stay day after day—everybody satisfied because he sees the roots covered, really worse than if they had been exposed. We have no doubt that *more trees are lost from imperfect heeling in* than from any other cause whatever. Of course, if the tops be covered as well as the roots, there is less waste of moisture and more chance of success.

This hint will help us in planting. That is, *pound* the soil in well about the fibres, so that they may be in close contact with it; or they cannot draw in the necessary moisture. Should the trees appear a little dry, or the roots badly mutilated in digging, or have few fibres, cut away the plant according to the severity of the injury. It is scarcely necessary to repeat that for this evaporation reason, it is best to plant

trees when the ground is rather dry, because it then powders best in pounding, and gets well in about the roots. Wet ground *plasters*, and leaves large hollows in which roots cannot work.

Where evergreens can be benefited by pruning, April is a very good month to attempt it. If a tree is thin in foliage at the base, the top of the tree, leader and all, must be cut away. It makes no difference what the kind is, all will make new leaders after being cut back, if properly attended to. We make this remark because there is a prevalent idea that Pines will not stand this cutting. Of course the trimming should be done in a conical manner, so as to conform to the conical style of the evergreen tree. Sometimes an evergreen, especially a Pine, will rather turn up some of the ends of its side branches than push out another leader; when this is the case, cut these away, and a real leader will form the second year.

Evergreen hedges should be trimmed now, cutting them conically, so as to give light to the lowermost branches.

Evergreen trees make a place look very cosy and warm in winter, but sometimes these are planted to an extent that make the grounds gloomy in summer. This can be remedied by planting gay flowers profusely among the evergreens. Where the evergreens are in clumps or belts, masses of phloxes, hollyhocks, or even beds or blocks of scarlet geraniums have a good effect. Many persons lay great stress on large open spaces of well kept lawn, and indeed they do look nice; but pretty flowers here and there, add to, rather than detract from the lawn beauty. There has been much said lately against carpet beds, mosaics and massing of colors in beds generally, but the effect is often gorgeous; and it is not likely that this system of ornamenting grounds will go out of fashion for a long time. It ought not, however, obliterate all taste for flowers in themselves. In fact, a good old fashioned bed of mixed old-fashioned flowers will seem all the better for a mass of mere colored leaves in the vicinity.

Yet a good lawn is the first essential of a neat garden, no matter how small the grounds may be. The constant cutting weakens the grass, and hence top dressings of rich material is a benefit; but be careful not to use gritty material or it will dull the mowing machine or scythe. Ashes or ground bone are dangerous in this respect, because the light substances are brought up to the edges of the knives by the pushing grass. Again, as everything, grass included, must have some green leaves before it has strong roots, do not cut the grass any shorter than is absolutely necessary to make the lawn look neat.

COMMUNICATIONS.

CALADIUMS AS BEDDING PLANTS.

BY MISS A. G.

For some years the culture and keeping of Caladiums were considered difficult; their preservation during winter was of the nature of an experiment. Now these hindrances have vanished, and even amateurs may undertake their culture with good prospects of success.

During last summer (1880) and one or two previous summers, several experiments were tried in this vicinity as to their eligibility as bedding plants, which have resulted very favorably.

At Patterson Park, Baltimore, Md., the caladiums were taken, already sprouted, from under the stage of the greenhouse and placed in flower beds, which were directly under the full rays of the sun. They were not shaded in any way, and at first, lost their leaves, but soon put forth others and grew luxuriantly during the summer, though a particularly trying one to vegetation, owing to a long drought. They were not watered constantly, but very thoroughly when they needed it.

The soil of the Park is a hard clay, very compact, and was not specially prepared for these plants. More than a dozen varieties were tried. One large bed of caladiums contained a C. esculentum in the centre, which made a handsome appearance. Caladiums have been used in this park for bedding purposes for the last three summers. The park, it might be well to add, is in the vicinity of a large body of water, and the atmosphere consequently moist even in summer, which is generally very hot in this vicinity. In the fall, when the leaves began to fade, these caladiums were taken up, put into dry earth, and set away in a warm place.

R. J. Halliday, florist, of Baltimore, recommends the starting of caladiums in pots early in January in rich soil—three-fourths loam, balance manure and leaf mold, adding sand if the soil is heavy; no drainage required. Separate the large tubers from the small, previous to potting, putting the small ones into powdered charcoal to preserve them till ready to use. Plant out in

this locality about the middle or last of May, according to the warmth of the season. Choose a rainy or a cloudy day for the purpose, and keep the plants shaded for a few days. Though the leaves may be faded by the sun at first, the next growth will bear it better. If care is taken to shade them well for a week they can be put into a sunny bed. Rather a sandy soil is best; add sand if the soil is heavy. Water till sure the water has reached the roots, and then leave to the rain. If many leaves have been produced before setting out, cut off some in the proportion of four out of six leaves. It is better for the health of the plants to put them into the rain while in the pots before setting in the beds. If wanted very large and luxuriant, pile manure about the plants.

Take them up in the fall before frost touches them. Keep in charcoal or sand for the winter, and set in a very warm place. Do not let them be dormant too long before potting or they will rot. As soon as they show signs of growth they should be separated and potted.

T. Fairly, florist, of Baltimore, says, keep caladiums in dry earth or sand during winter and in a warm, dry place. They would do well in a warm closet, if convenient, and may be put all together in a pot or box. Pot them in February. When, in the fall, their leaves begin to fade take them up.

Mr. Fairly had a number of caladiums in his front yard during the summer which made excellent show. These were shaded in the morning, but in the afternoon were exposed to the hottest of summer suns—the place being extraordinarily hot—thus showing that they can bear more direct sunlight than is generally supposed.

A lady amateur of this city cultivates the caladium, and says she finds no difficulty in keeping or cultivating it. In winter they are kept on top of a wardrobe, in a room sufficiently warm to sit in. Each root is placed in a six-inch pot containing very dry, dusty earth, and covered with the same. About April 1st, they are potted for growing. As for her, they generally start into growth at that time.

A gentleman amateur, whose experience we heard, kept his in an upper room on a mantle warmed by the chimney.

If caladiums can be used regularly as bedding plants as these experiences would imply, the lawn, the small yard and the garden may all be enriched and varied by their fine colors and graceful appearance.

CARDEN SCIONS.

BY CANTAB, BOSTON, MASS.

V.

Stonecrops and other Sedums.—I cannot call them all stonecrops, because though that name be applicable to the acre group it is not given to the live-for-ever section, and neither name to those little kinds that grow in the woods. Stonecrops, that is, such sedums as acre, sexangulare and album, love exposed and sunny places and a moderately dry footing, and one admirably suited to rock-work. S. dasyphyllum, with its fat little leaves, and S. hispanicum, famous for its neat habit and bluish cast, also delight in open situations, but prefer a sheltered rather than scorching position, and are grateful for slight winter protection. They are now being extensively grown as carpeting and paneling plants in mosaic bedding. Sedum pulchellum is a neat little species that bears a profusion of pink flowers in summer; it loves a free soil and open situation. S. spurium and its varieties and nearest relatives delight in sunny places in borders or rock-work; are evergreen and blossom copiously in spring and early summer, and some of them assume a handsome crimson-bronze leaf tint from fall till spring. S. Sieboldii and its variegated form make neat basket plants, but are perfectly hardy. They are deciduous, love an open sunny spot, are especially valuable as they blossom in September and October. The best of the "flowering" Sedums, however, is S. spectabile, one of the very best hardy herbaceous plants grown; its flowers are rose-purple and produced in August and September.

But there is a group of which Sedum Nevii and ternatum are representatives, that grow beautifully in sheltered shady places, but refuse to thrive in open sunny spots.

MR. F. L. AMES' CARDEN AT NORTH EASTON, MASS.

BY WILLIAM FALCONER.

(Concluded from page 67.)

Orchids.—Within the past six years an immense collection of orchids has been accumulated. New sorts are added as they can be got, and several are so "new," that they have not yet blossomed in America. The famous collection of orchids owned by Mr. Rand at Dedham, was bought by Mr. Ames and added to his own some four years ago, and about a year since, that select but extensive collection amassed by Mr.

Beard, of Cambridge, was also purchased by Mr. Ames. Messrs. Menand's at Albany, and Such's at South Amboy, have been culled from repeated purchases made in New York, and large orders of the newest and the choicest things annually introduced from London. The tropical orchids are grown in a large span-roofed house, and the cool ones in a north-facing lean-to, ninety-four feet long.

At this time of the year Cypripediums are prominently conspicuous. Besides the commoner kinds I noticed in blossom Lowii, Parishii, Schlemii, Hookeræ, Harrisanum, Dominianum, Crossianum, argus, and Sedeni. Also C. Spicerianum an Indian species in the way of Fairrieanum but larger, exceedingly distinct, having the upper sepal white and lateral sepals and lip greenish and shining; vexillarium, one of Dominy's hybrids between barbatum and Fairrieanum, of compact habit and proportionately large flowers; and Lawrenceanum, one of Burbridge's discoveries in and introductions from Borneo three years ago, flowers in the way of barbatum but brighter and larger than those of the best variety of that species, and its leaves mosaically variegated in the way of Javanicum, but more boldly and distinctly so than those of that, Dayanum, Hookeræ, or any other known species. Dondrobiums on blocks and in baskets are suspended from the roof and many kinds are grown in pots set on the stages; deciduous sorts of upright and pendulous character and that have not yet come into blossom are wintering in a light and airy grapery where a night temperature of 45° is maintained. The fragrant heterocarpum, profuse moniliforme, long-spiked superbiens, choice Findleyanum and densely clustered aggregatum majus are in full bloom and many other kinds fast advancing to that stage. Phalænopsids are represented—some kinds by a score or more of plants apiece; P. leucorrhoda, in blossom, emphasizes its supposed hybrid origin,—between Schilleriana and amabilis. Among several Cattleyas in bloom, Walkeriana has strikingly large and rich rosy flowers, Pinella more bloom than plant, and Warscewiczii delicata is "a thing of beauty." Clumps of Lælia albida, white and fragrant, Lindleyana, rosy white with deep blotched lip, acuminata with nine buds on a spike, peduncularis like the last, and furfuracea somewhat like autumnalis, brighten up the mass. Angræcum Chailluanum and sesquipedale present many long tailed buds, and eburneum is unfolding its fragrant ivory lips. Dense racemes of Saccolabium Harrisonianum and giganteum decorate some hanging baskets; Rodriguezia secunda has carmine red spikes, Pilumna fragrans sweetly scented white ones, Oncidium Forbesii, Lanceanum and cheirophorum are at their best, and the white variety of ornithorhynchum is bursting its spicy buds. The white Lycaste Skinneri has several blossoms, Calanthes, red and white, in great profusion are grown in shallow baskets, Masdevalleas blossom where it is cool, and there, too, a fine specimen of Maxillaria venusta has many large white flowers. Odontoglossum nebulosum is copious and strong. O. Pescatorei with its branching spikes appears in scores, Alexandræ no less numerous, and many other of the choicer orchids in well-favored thrift, and fairly demonstrate that with proper care, convenience and place "cool" orchids can be successfully grown in this country.

The Fern Grotto.—There is a large fernery in "natural" conservatory style. The sides are lined and pouched with virgin cork in shaggy fashion and the interior banked, bouldered and intersected with rocky mounds and uneven surfaces, and traversed by appropriate rustic pathways. At the north end a water streamlet trinkles down a rough and rocky course into a little pool beneath, and by this water-way and around the basin, filmy ferns as Todeas and Trichomaneses are growing in apparent enjoyment of their constant laving. All the ferns are planted out and luxuriate in their unmeasured root room. Fine specimens of Dicksonias, Cyatheas, Cybotiums and Alsophilas—tall stemmed, broad headed tree ferns occupy the central portion. The dwarfer ferns nestle in pouches in the wall, and in rocky chinks and pockets form a carpeting to their arboreal hosts; stag-horn ferns stick in bunches to the sides; the lengthy fronds of Asplenium longissimum reach down the rocky cliffs to root again and start afresh; diffuse Davallias of the Mooreana and ornata type extend their ample fronds to hide all stones within their reach; and the Japanese Woodwardias recline in fountained grace from projecting points.

Pitcher Plants.—As many kinds of Nepenthes, as Kina Balu himself can boast of, are here represented in basket homes depending from the roof in the stove. They are growing in Such's orchid-peat and sphagnum moss through which water passes freely,—a necessity because of the great amount of water that they need and which should never stagnate. In their native wilds

Nepenthes enjoy excessive humidity and a subtropical or tropical temperature. Naturally they are climbing vines, and the older the vines are and the further they run the smaller and less numerous are their pitchers. This is observable in their cultivated as well as wild condition, therefore, the old and scraggy vines are shortened back in favor of fresh sprouts; hence the multiplicity of handsome pitchers that ornament these baskets. They include Rafflesiana, Sedeni. Chelsoni, intermedia, distillatoria, rubra, hybrida, h. maculata, ampullacea, a. vittata major, Courtii, Dominiana, Hookeriana, lanata, Veitchii, and bicalcarata. The last named "has its pitchers armed in a really formidable way, and the swollen stalks of its urns perforated by a species of ant in a singular manner." It is one of my friend Burbridge's triumphs; the first living plants of it ever brought to Europe were those introduced by him from Borneo between two and three years ago.

LETTER FROM THE BLACK FORESTS IN GERMANY.

BY. W. D.

The November number of the MONTHLY is, as usual, stored with information most useful and interesting to all lovers of flori and horticulture. The communications of Messrs. Ellwanger, W. E. Meehan and Laxton, referring to the rose, the queen of flowers, make that number, as you say, "a rose number."

The culture of the rose has made of late years wonderful progress, not only in Europe, where its cultivation is carried on on a grand scale, especially in France, but also in the United States, where more roses and at higher prices are sold than in any other land under the sun, owing no doubt to the great love which the people of that favored land entertain for this most lovely flower. Where else but in the United States will people pay for a bouquet of Niels or other favorite flowers twenty dollars? Pay for a single bud from twenty-five to fifty cents? How different here, where prices even in the fashionable and world-renowned city of Baden-Baden are, in comparison to New York or Philadelphia, trifling. Only a few weeks ago a large and exquisite bouquet of Marechal Niel roses was offered to me at that celebrated watering place at the low price of two marks, not quite half a dollar. At Baden-Baden there are many market gardeners and floriculturists, but their grounds as well as their plant-houses, cannot in extent be compared to anything that can be seen in the United States, even in their smaller cities. However, the taste which gardeners display in the making of bouquets is very good; they use, for instance, half opened buds of the fine roses, Souvenir de Malmaison and Glorie de Dijon, interspersed with that grand violet, Lee's Victoria; the effect is very fine.

The culture of the rose at Steinfurth, Nanenheim in Hesse, at Luxemburg, at Kurtritz in Thuringia, at Stuttgart, and many other places, is carried on on a grand scale, and very successfully too. Of late years many new and good roses have appeared, Mr. Bennet, of Stapleford, having succeeded in bringing out tea hybrids, which surpass many of the good old tea or remontant roses. If out of his six new roses he only succeeds with his Duke and Duchess of Connaught, two large, dark crimson colored, fine scented roses, very much will be gained, since these are the two first deep red roses amongst the Teas, where only white, orange and yellow so far are known.

The list of roses which Mr. Ellwanger cites is certainly a very good one, and doubtless well adapted to the northern climate of the States; but amongst a collection of three hundred different roses, which I frequently had an opportunity to see during the last summer, I found many roses which I think ought to have a place in every rosarium. I will mention a few in hybrid remontant:

Captain Christy.—A large, splendid, well-formed rose, flesh colored, similar to Baroness de Rothschilds.

Cheshunt Hybride.—A great bloomer, a carmine cherry red of brilliant color.

Madame Louis Van Houtte and *Madame Victor Verdier.*—The two best dark red roses.

Madame Soupert.—White rose.

Boule de Neige.—In constant bloom, the best white amongst the H. R.

Senateur Vaise.—A fine large rose, of velvety crimson color.

Duke de Edinburgh.—A brilliant rose for effect, large, of crimson color, but unfortunately, inodorous.

Empereur de Maroc.—deep, dark, brilliant red, the darkest of all roses, should be in every collection.

Fisher-Holmes.—A constant blooming rose of a brilliant carmine color.

Souvenir de Mere Fontaine.—Is a lovely rose of crimson color.

I could give a long list of splendid roses, but space forbids; yet I will mention a few Bourbons and Teas, roses though old that have not been surpassed as yet:

Triumphe de Rennes.—A large Tea rose, of brilliant yellow color and highly scented.

Souvenir de Malmaison.—As yet the finest Bourbon rose, of delicate flesh color.

Gloria de Dijon and *Marechal Niel.*—So far the two best Tea roses.

And last but not least, the superb H. R. (not Tea, as supposed by some) *La France*, the finest scented rose of all.

Of new roses, fine acquisitions, I beg to name:

Duc de Chartres (Verdier).—Of a fiery crimson color.

Madame la Baroness de Medson (Verdier).—Aster-form, brilliant cherry carmine.

Magna Charta (William Paul).—A large, well formed rose, rose with carmine, changing to violet, with violet odor.

Andre Nabonnand.—This is a new Tea rose, large, red with carmine.

Reine Marie Antoinette (Levet) also a Tea rose, in form of Glorie de Dijon, but not blooming.

Madame Eugenie Verdier (Verdier).—Silvery silky, like La France, of a splendid form, a fine acquisition.

The last "nouvelties," are Bennet's tea hybrid roses, six in all, for which as yet high prices are paid: they are the Beauty of Stapleford, the Duke and Duchess of Connaught, Honorable George Bancroft and Jean Sisley. Soupert & Notting, the well-known rosists of Luxemburg, are also out with a new tea rose, the Madame de Lochensils, in form like Souv. de Malmaison, silvery white, the under petals salmon colored. It is claimed to be a constant bloomer until frost sets in. The great firms of Verdier, Levet, W. Paul, Soupert & Notting, and others, are constantly on the *qui vive* for improving the rose. Legions of new roses appear from year to year, but only a few survive. Already the collection of Bourbon, Remontant and Tea roses is so great that the lover of the queen of flowers will find no difficulty in making his selections.

(To be continued.)

EDITORIAL NOTES.

DOUBLE FLOWERS.—Speaking of Double Stock-gillies, M. Chote in a French paper translated by the *Gardener's Chronicle*, says:

"Every time that I have had a single flower, in which one or more stamens were adhering to the petals, complete duplication was not long in making its appearance, whether these flowers were fertilized by pollen from a double or semi-double flower, or whether we cut off the latter so as only to collect seeds from the former;" and we may add this as is true of all kinds of flowers as of the Stock-gilly.

DROOPING NORWAY SPRUCES.—It may be remembered that in a paper contributed some years ago to the meeting of the American Association at Salem, Mass., Mr. Meehan showed that the branches of trees which had the greatest power to assimilate nutrition, or in other words the greatest vital power favored the production of female flowers,—the weaker trees or branches only being left to the males. One of the proofs of this was that those trees which had the greatest vital power, among Norway spruces, pushed into leaf before the weaker ones, and that therefore those who wished the rich drooping foliage of the productive cone-bearing trees, should select those which pushed into leaf the earliest in spring. Of this Mr. Robert Douglass says in the *Country Gentleman:*

"In a Norway spruce hedge or screen, many of the trees have finished the summer growth before the latter ones have fairly commenced, so that the hedge seems to be formed of different species of trees. At the suggestion of Mr. Meehan we selected about fifty spruces of earliest starting, when they each made about a half-inch growth, and planted in a hedge for experiment, which proved that this early habit is permanent, for they all started at the same time the next year and the next. You may also have noticed that the trees with "luxuriant foliage and drooping habit," are almost invariably the ones that start the new growth earliest."

IMPROVED FLORIST'S FLOWERS.—The numerous forms into which florists have forced so many old fashioned flowers is truly surprising. Mr. Cannell has produced a double annual chrysanthemum, and a very interesting race of star petunias, peony flowered poppies, and greatly improved striped snap-dragons. It would be well worth while to see what could be done in the way of improving many of our pretty native things.

GARDENING NEAR BALTIMORE.—The *Maryland Farmer* for February has a few more notes. Mr. Charles J. Baker has two plant houses, one rose house for winter flowers, and two grape houses. Mr. Daniel Thorley is regarded as a first class gardener, excelling especially in the production of fine vegetables, and in keeping the grounds neat and clean. Mr. Wm. Frick has a place of great landscape beauty, and it is well planted; there are two plant houses and a grape house. The famous fruit and greenhouses of John Hopkins are now rented to Mr. Fowler, formerly

Mr. Hopkins' gardener. John W. Garrett, Pres. Baltimore & Ohio R. R., has a range of houses for plants and grapes; one house is especially devoted to raising flowers for cutting. The grapes are remarkably successful. The place is comparatively new, and yet affords scope for future landscape gardening activity. Mr. W. T. Walters has grounds of great landscape beauty, and always kept in admirable condition by Mr. Frazier, gardener. There is a range of buildings for plants and flowers, and a fine and successful grapery. Mr. Ernest Hoen is fond of specialties; herbaceous plants are favorites, as also are gloxineas, and plants of that class. There are three greenhouses, and the place, though small, is admirably kept. Mr. Henry Taylor has two houses for flowers and grapes, and attention is given to fine bedding plants. Mr. Edward Kurtz has been an enthusiast in gardening for sixty years. He has a grand collection of camellias and azaleas. He has one long house devoted to plants, and though over eighty years of age devotes much of his time to the pleasures of gardening.

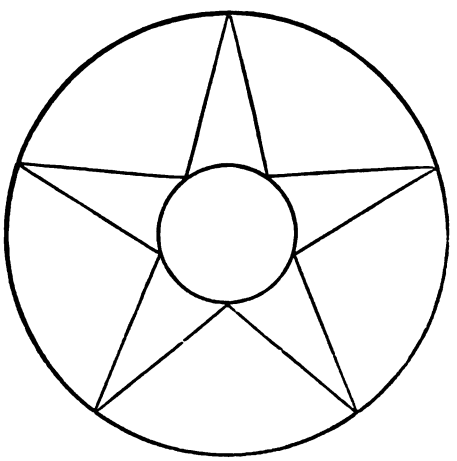
ABIES PARSONSIANA.—The names of pines and other coniferous trees have been so mixed up by the fondness of some for attaching Latin names to mere varieties, and by their ignorance of botanical rules, that we scarcely know what we are talking about when coniferæ is the subject of debate. Little by little we are getting out of confusion. Authentic specimens of Abies Parsonsiana have been recently sent to Dr. Engelmann from England, and he finds that botanically, it is a form of A. concolor. It is, however, distinct enough to be as well worthy of separate propagation as the Tom Thumb arbor vitæ is from the George Peabody, and if we should come to the calling of it Parsons' concolor it would avoid all clashing with botanical work. It has already been decided that Lowiana or "Low's concolor" is a later name for "Parsons' concolor," and that A. lasiocarpa is a later name for the original Abies concolor.

SCRAPS AND QUERIES.

DISTANCE TO PLANT ROSES.—A lady writing from Washington, D. C., says:—"Will you please inform me through the columns of the MONTHLY what is the proper distance to plant roses in beds where they are to remain permanently? Messrs. Dingee & Conard in their catalogues say one foot, and on that basis give figures to show the small amount of space required for 100 or 1,000 roses. But it seems to me this will not do except for small plants to be renewed each year."

[We should regard one foot apart as much too close for a permanent rose bed, and the directions were no doubt given in view of small mail plants, of which one would want to have a good full-looking bed the first year of planting. For the average dwarf roses, such as Tea, China, Bourbon, and the like, eighteen inches is a close enough distance, and if in those favored latitudes where roses do not die back much in winter, and grow strong in summer, two feet is close enough. For hybrid perpetual roses, two feet apart is close enough anywhere.—Ed. G. M.]

MAKING A STAR.—"Subscriber," Denver, Colorado, says:—"Would you be kind enough to inform me how to lay out practically a five cornered or five angle star. Have laid them out for flower bed purposes, but thought they were not as true and correct to the eye as could be made.



Therefore I thought some of the readers who are no doubt better posted on geometry than I am could instruct me in the true and correct way to lay out such a star perfectly?"

[For practical purposes a little ingenuity will enable one to do as well as by geometrical rules. For instance, in making a star, one might describe two circles, and then divide each into five equal parts—the division of the interior circle being alternate with the outer ones. By the use of straight lines, squares and circles, almost any figures may be worked out. We give above a star worked out by dividing the circles in this rough way.—Ed. G. M.]

PEDIGREE ROSES.—A correspondent inquires whether any of the varieties raised by Mr. Bennett from especial kinds, and known as "pedigree" roses, have been tried in our country; and whether they have proved of any more value than seedlings raised on the hap-hazard plan?

JAPAN CHESTNUTS.—C. E. P. asks:—"Will Mr. Parsons be so good as to give the readers of the MONTHLY a description of the Japanese chestnuts that were exhibited by him at the September, 1880, exhibition of the New York Horticultural Society?"

ROSA POLYANTHA.—"Bergen," of New York, says:—"Will you be kind enough to give me through the columns of the MONTHLY some information about Rosa polyantha as to hardiness and blooming qualities. I have seen the description of a new variety by Jean Sisley, both in the *Garden*—1880, and by a party offering it in this country, and would like to try it if hardy?"

[We know of no one in America who has had the rose long enough to answer this question. If there be, we should be glad of the information."—Ed. G. M.]

DREER'S COLEUS.—F. F. C., Racine, Wis., says: "Have the new Dreer's coleus of 1880 had a good test in the hot sun in massed beds, and with what success?"

[The notes which have already appeared in the magazine may be a sufficient reply, except as to kinds not already noted.—Ed. G. M.]

GLOIRE DE DIJON ROSE.—T., Bristol, Penna., writes:—"Have you any knowledge of the Gloire de Dijon Rose standing the winter when planted out as far north as this, say twenty miles north of Philadelphia? We have one here that came from the greenhouse of John Sherwood, Bristol, Pa., somewhere between fifteen and twenty years ago, was planted out then, and has been undisturbed ever since. It is not on its own roots, and is planted quite deep, the bud below the surface, in rich soil, against the side of a house; exposure southeast, with no protection but a simple wooden trellis. It grows vigorously, sends out shoots from four to six feet in length, and in a severe winter will lose one-half or two thirds of its new growth. It blooms well, but most abundantly in spring and fall. Is the Marechal Niel any more tender than the Dijon, and if not, might it not be expected to do as well under the same circumstances?"

[It is generally understood that this rose is one of the hardiest of the Noisette class.—Ed. G. M.]

GREENHOUSE AND HOUSE GARDENING.

COMMUNICATIONS.

HOW TO CONSTRUCT AND MANAGE A SMALL HOTHOUSE.

BY CHARLES DUDLEY WARDE, CONCORD, N. H.

Feeling sure that many lovers of flowers would construct conservatories for their own private use, but are deterred from so doing by the supposed large cost necessary for building and running the same, I propose to give as briefly as possible the results of several years' experiment, which will be particularly useful to those living in the Northern States.

First, how to construct a small greenhouse, especially adapted for practical purposes and at the least expense. In selecting the location great care should be taken to find the spot that is most sheltered from the wind, and conveniently near the dwelling. But the most essential point of all is to have an unbroken southern aspect.

Opinions differ in regard to the way of running a greenhouse, but where the land will permit, I should prefer to run it east and west, and think a "span house" is better than a simple southern slope.

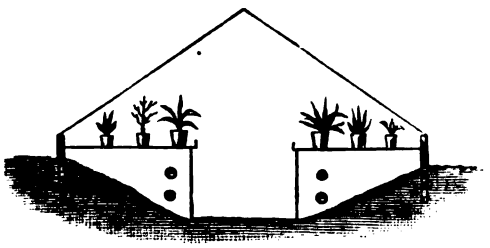
The size of my house is 10 x 30 feet, and the method of construction is as follows:

Take twenty chestnut posts ten inches square at the top and four feet long; place one at each corner, six between on each side, and two at at each end. Set the posts so that eighteen inches will be above ground, and on the top place a four inch joist running all around except at the end selected for the door. Board up both

sides of the posts with matched boards, and if you are situated far north, line the inside of the boarding with building felt, but do not fill the inside with saw-dust. Dig out the earth in the centre where the walk will come, two feet deep, and about a yard wide.

The whole is to be glassed over, except a space of five or six feet at the entrance; this is to be boarded over at the same angle as the glass (about 48°) and by covering it with cotton cloth and painting the cloth makes it perfectly tight. This part is separated from the hothouse proper by a light door, and is used on one side for a potting bench, and on the other as a furnace pit.

The best and cheapest way of making the sash, is to have the strips in which the glass is set of pine 1½ x 1¾ inches, and the grooves cut by machinery; these are mortised into joists, top and bottom, and firmly placed in position before the glass is set. I think the best size of glass is 10 x 15, and in setting do not lap the lights more than a quarter of an inch. Bed the glass in putty, but it is not necessary to put it on the outside, unless for looks.

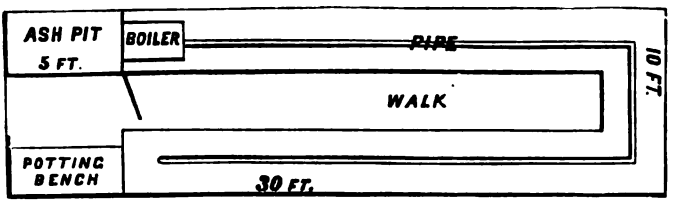


SECTIONAL VIEW.

There must be at least three ventilators, each about 2 x 3 feet, on the south side at regular distances apart and near the top. The end opposite the door can be made of sash or boarded up, at the option of the builder. If it is to be in a conspicuous place, some simple ornamentation will not be out of place.

We will next consider the heating apparatus and the arrangement of the interior. The boiler is quite small, one made for this special purpose, and is situated on the left as you enter. The door of the fire-box is in the small compartment but the boiler extends into the hothouse. The piping consists of a line of four-inch iron pipe going around the house and back. The pipe can be laid on each side of the walk, and thus save excavating under the benches.

The arrangement of the interior can be varied



at the wishes of the owner and the plants it is desired to grow. I will mention some points of arrangement in another article on management.

The expense will vary according to price of glass, lumber, etc., and the facility for purchasing in different places.

Cost of hothouse complete, $155. Items: lumber, $27; glass and putty, $30; labor, $23; incidentals $10; 100 feet of pipe, $25; boiler, $15; setting boiler and laying pipe $15; incidentals, $10.

This shows in a rough way what can be done with a moderate sum. And I shall be pleased to answer any inquiries from those interested in regard to points not touched in this article, and shall at some future time give a detailed account of what plants to grow, and how to make a small private greenhouse pay all the running expenses, the cost of construction and leave a liberal margin for the purchase of new plants—and with an expenditure of time not exceeding the leisure of any business or laboring man.

FROZEN PLANTS.

BY G. ROSENHAHN, TIPTON, MO.

Last December, I found one morning one of my houses with mixed plants, mostly geraniums, some smilax and heliotropes, frozen, so that the ground was hard in many pots; and as we had watered late in the evening, the water froze on the leaves in some plants over an eighth of an inch. We started the fire slowly, raising no higher than 45° that day, watching all the time to see the leaves wilt and droop, but they kept their place, and do so yet; they only have a

brownish cast. I had frozen plants before, and lost them; and marveled about what could have produced this better result, until I read the article in the GARDENER'S MONTHLY, from W. F. Bassett, to keep off the sunlight. We had no sunlight at that time for three days, and I conclude that this was one of the agents that saved my plants.

POINSETTA AS A GREENHOUSE PLANT.

BY JOHN GUNN, WHITINSVILLE, MASS.

I know the Poinsetta is thought by many to be a hot-house plant, but that it will do in the greenhouse must be evident to all who have given it a trial. I think no one who has a greenhouse, should be without a few of these beautiful plants. I do not know any class of plants that will make such a gorgeous display at this time of year. I have had the best results with young plants in six or seven-inch pots. They will produce bracts from fifteen to seventeen inches in diameter, on plants about three feet high. The night temperature of the house we grow them in ranges from 45° to 50°. I am aware the Poinsetta is largely grown in sale places, but I do not think it receives the attention in private places that its beauty and usefulness warrant.

HOW TO REMOVE COAL TAR FROM HOT WATER PIPES WITHOUT REMOVING THE PIPES.

BY THOS. LAWRENCE, OGDENSBURG, N. Y.

One of my customers having painted his hot water pipes with coal tar, with the usual result, was advised to take them out and burn them to take it off. The house was new and beautifully finished. The pipes, put together with a rust joint, which would have necessitated a great deal of tearing up and much labor to get them out. The proprietor preferred trying experiments first.

He washed them with strong hot lye, applied with a swab tied to the end of a stick. One man went first and swabbed the heaviest part off, and another followed whose lye did not get foul so soon. Two, or at most three applications, made them as clean as when first put in, and there was no trouble afterward. We tried benzine and several other things, that I do not now remember, without the desired effect.

[The most amazing thing about all this matter is, that there should be such a number who tar hot water pipes. It is only explicable on the theory that there is a fresh crop born every day. Those who have read horticultural papers surely do not do these funny things.—Ed. G. M.]

STEAM HEATING.

BY G. H. BOCHMAN, MORGANZA, PA.

I have yours of the 10th ult., and shall endeavor to meet the question as to the greater merits of steam heating above that of hot water. If I rightly recollect our conversation you put it about as follows: Why is it, that with the advantages claimed for steam over hot water it has been so perfectly dormant for so many years—since Loudon drew attention to steam as a practicable heating medium for horticultural structures? And why has nearly every attempt at utilizing it for the purpose failed completely? And lastly, wherein does my method which has proved thoroughly efficient throughout five seasons, differ from others that have been tried and abandoned?

To these queries I shall try to reply as briefly and pointedly as I can. I think the explanation to query No. 1, is that the necessary devices for the control of steam as a heating medium have been of comparatively late introduction; among these are foremost, next to an efficient generator (boiler) an *automatic*, and at the same time *positive-acting* device for the return of the condensation to the boiler, and next nearly as useful, if not as indispensable as the one just mentioned, a *reliable damper regulator*. After these there are other excellent arrangements either tending to greater perfection in economy of fuel or attention, such as pressure-regulators (for admitting steam at a low pressure to the heating pipes, while generating it in the boiler at a high pressure, the advantages of which any one familiar with steam is cognizant of), or the self-feeding device so well known in base-burning stoves for doing away with the necessity of replenishing fuel oftener than every eight or ten hours.

My opinion as to the principal cause of the failures with steam heating, is that in every instance brought to my notice the pipes used have been entirely too small, generally one inch and even as low as three-quarter inches having been used to convey steam many hundreds of feet; the condensation going on in so small an area is so rapid, that in order to transmit any steam at all to any considerable distance, you have to do so at a very high pressure, which in itself is so great an evil as to stamp the whole

thing a nuisance at once. It has been my practice to use two-inch, but in the houses at present under my personal supervision I have three-inch in use, a large lot of that size becoming available from a different use. I find the advantages important enough to recommend their use in preference to two-inch whenever first cost is not too great a consideration.

The present winter has certainly been a good one for thoroughly testing the merits of any heating apparatus, and the ease with which we have mantained from 60 to 65 degrees against 20 below zero out doors, was even a surprise to myself. It may perhaps be of some interest to yourself or others to learn that my efforts in this direction were caused by a serious mishap to my heating apparatus (smoke flues), late in November, 1876. To have placed hot water into my houses could not have been done under a month; my whole stock was in imminent danger of freezing, root and branch. Not unnaturally under the circumstances, I was willing to listen to any suggestion coming from my friend Mr. John H. McElroy, a well-known expert in mechanical and steam engineering, who proved conclusively to me, that all the objections I ever heard urged against the use of steam were based on errors in the construction of the apparatus. In short, I accepted his advice and assistance; the whole thing was finished in as many days as it would have taken weeks to put in hot water, and for about one-half the cost of the latter, and it has worked from that day on to the greatest satisfaction in every particular, and I should here like to say, that if the horticultural world adopts, as I have no doubt it will, low pressure steam as a heating medium for greenhouses, in the near future, as a grateful release from the clumsy, expensive and wasteful method heretofore in use, its thanks for the blessing are due my friend Mac.

In conclusion I wish to say to yourself Mr. Henderson, and not as a mere compliment either, that it seems to me peculiarly your mission, especially in commercial floriculture, to advocate anything tending to simplify and cheapen the cost of operations, or to make the same productive of better results, (practically the same thing,) and I do not think there is a better field for progress just now in our line than the subject matter of this letter.

[We have been favored with this very interesting paper through Mr. Peter Henderson.—Ed. G. M.]

CATTLEYA SKINNERII.

BY MR. MANSFIELD MILTON, YOUNGSTOWN, OHIO.

A beautiful orchid from Guatemala, of easy culture. The flowers are produced on spikes from the top of the bulbs, as many as six and eight flowers being produced on single spikes, if the plant is strong and vigorous. It is best grown in pots, with plenty of drainage, in fact the pot should be about two-thirds filled with potsherds, and a good layer of sphagnum moss cover the whole, to prevent any dirt from choking up the drainage. Peat, with a few pieces of charcoal mixed, is the soil I have found these plants to succeed best in; the peat broken in pieces about the size of pigeons' eggs and a good sprinkling of sand mixed with it. The plant is best raised well above the edge of the pot, and not too much water given at any time, as any approach to stagnant soil is apt to rot the roots and bulbs. It requires a good high temperature when making its growth, but when at rest and when its flowers are open a cooler and drier place is more suitable for it.

What a most beautiful genus of plants is Cattleya, some of the species being remarkably fine! What can equal some of the varieties of Mossiæ, and what a number of varieties there are in the species, from pure white to the brightest rose color? It should be oftener seen in collections than it is, being suitable for growing with a general collection of plants, and of as easy culture as some of the finer kinds of roses, which every body thinks he or she can grow.

CŒLOGYNE FLACCIDA.

BY JOHN MURCHIE, GARDENER, TO MR. GEORGE BOYCE, SHARON, PA.

I thought I would call the attention of the readers of the Monthly, who are interested in the cultivation of orchids, to this plant, as a very desirable one for winter blooming. I have not seen it noticed in any of the lists of orchids which have appeared from time to time in the Monthly. It is a strong-growing evergreen plant, of neat, compact habit, making bulbs four inches high, bearing a pair of dark green, glossy leaves, ten inches long, and produces its graceful, drooping spikes in great abundance, which are about a foot long, bearing from nine to twelve flowers. The flowers are about two inches across, and of a rich cream color, with a band of orange in the centre of the lip and marked on

the inside with stripes of rich brown. It will last in good condition four or five weeks. The plant in the picture is in an eight-inch pot, and has eleven spikes, with an average of eleven flowers to the spike. This plant does well in a basket, but does best in a pot. I think it worthy a place in any collection.

In a subsequent note Mr. M. says:—"I send to-day a spike of the orchid of which I previously sent photograph. Mr. Mansfield Milton paid me a visit the other day, and expressed the opinion that I had sent you the wrong name, and that Cœlogyne flaccida was not correct, and advised me to send you a spike.

I would just say that "flaccida" was the name given me by Mr. Geo. Such, of South Amboy; I sent it to him for name two years ago.

This plant I picked up on the rubbish heap of a neighboring garden, where it had been cast as worthless, the bulbs were then not more than an inch long, and about the thickness of an ordinary lead pencil. I thought it was an Epidendrum, and more than likely not worth growing, but always having a passion for orchids, concluded to see what it was. I took it and after washing clean, carefully potted it and gave the treatment I would an Epidendrum, but soon found it liked a little more heat. This was some six or seven years ago. The first year it made nice, plump, little bulbs, and the year following gave me two spikes of flowers, which amply repaid me for the care I had bestowed upon it, and now at the present writing the bulbs are nearly five inches high and an inch and a half in diameter; the flowers I described to you in first note. It is easy of cultivation, and does best in a pot, filled to half its depth with broken pots or charcoal, upon which is placed a layer of moss. I then take some good old leaf mould,

CŒLOGYNE FLACCIDA.

river sand, charcoal broken fine, and sphagnum mixed. I suppose peat would be better than the leaf mould, if it is to be had, but I find that I can grow any of the varieties of orchids I have in the above mixture. Would just say here that one of the best materials I ever grew orchids in was cocoanut fibre; it will not retain moisture, but never remains wet for any length of time.

This Cœlogyne requires plenty of water at the roots while growing. It begins to grow about the middle of March, and will have completed its growth by the middle of September, and if placed where it can have plenty of light and a temperature of about 55°, and just given enough water to keep the bulbs plump, it will flower

abundantly all through the month of February."

[There are a number of very closely allied species of Cœlogyne, and it would be difficult for us to decide this question of identity positively. But as a specimen of a remarkably well grown orchid we have had the engraving made from the photograph. We are sure our readers would be glad to hear often from such a good plant grower.—Ed. G. M.]

DENDROCHILUM GLUMACEUM.

BY GEORGE SUCH, SOUTH AMBOY, N. J.

Among the many orchids now in bloom in my greenhouses I find none with flowers more delicately beautiful or more deliciously fragrant than those of the lovely Dendrochilum glumaceum. It is to be regretted that the plant is so seldom seen.

This orchid is found chiefly in the Philippine Islands on trees in moist woods at a considerable elevation above the sea. It is of very neat, compact growth, having handsome evergreen leaves about a foot in length. The charming sprays of white flowers which it sends forth in abundance are produced from the young growth; and if the flowers are not drenched with water, they last a month.

I consider this to be an orchid very easily managed. It should finish its growth in the spring or early summer, and then rest until the autumn; this rest being encouraged by gradually reducing the amount of water given until at last only enough watering should be done to prevent the bulbs from losing their plumpness.

When the long repose of the plant is at an end new growth begins, which is indicated by the appearance of small reddish-brown breaks, as they are called, at the bottom of the old bulbs. This is the time at which, if needed, repotting should be done, or if other plants are wanted, division should be made then.

In potting, the pot should be at least a third full of crocks or bits of charcoal, for good drainage; and for potting material I use peat and sphagnum moss chopped up and mixed together in about equal quantity, and of late I have added a little coarse leaf-mould to the mixture, with good results.

When shifting this orchid, as much of the old soil should be taken away as can be got at without injuring the young roots, and the fresh mixture should be put in carefully but rather firmly, so as to hold the plant securely in its place. A little fresh moss coarsely cut up may be arranged as a finish over the soil; care being taken that when all is done the neck of the plant and the moss should be about on a level with the rim of the pot.

A night temperature of about 60 degrees, with five or ten more by day, will suit Dendrochilum glumaceum well.

At first, say for two or three weeks after potting, the plant should have but a moderate supply of water; but when vigorous growth begins, too much water can hardly be given, provided that the drainage is good, and the water at least as warm as the air in the house.

As the growth gets to be pretty well advanced, the flower spike is thrown out; early in March this sweet orchid is usually in full bloom, and if the house is not unusually large, the exquisite perfume of the flowers will fill the whole of it —a perfume much resembling the fragrance of the white water lily of our ponds, but even more delicate and delicious than that.

After the flowers have faded, the new growth fills up rapidly at the base, forming new bulbs. Water must still be generously given, until the bulbs, by swelling no more, show that they have reached their full size. Then the watering should be gradually lessened, so as to bring on the summer repose mentioned above.

I have endeavored to make my directions so distinct as to enable any one with a warm greenhouse to grow this Dendrochilum satisfactorily, and feel sure that those who follow them and bring this beautiful plant into bloom, will thank me for calling attention to it.

SCRAPS AND QUERIES.

Moss Mulching.—H. L. P., Washington, D. C., says:—"I should like to hear through the Gardener's Monthly from Mr. Henderson, in regard to a difficulty I have found in his method of mulching with sphagnum and bone dust. I find that a white fungus appears about the roots. A florist of this city informs me he has observed the same. Is that owing to my bad management, or is it inherent in the system?"

The Winter and Flowers in Ohio.—A correspondent says:—"This has so far been one of the severest winters I have experienced since I came to the country. I do not know what you have had in the East, but here we had almost zero weather since November, and but two or

three days of sunshine. This continual dull weather has had a telling effect upon the opening of flowers, it being difficult to get them to bloom with steam firing and no sunshine. The increasing demand for cut flowers and smilax during winter in this section is notable. Within a year I should think it has increased about 50 per cent. Long may it continue, for a love for flowers does more in fostering a love for home, and training the better part of our nature, than plenty of the so-called moral institutions."

DOUBLE ABUTILON.—Mr. Edward C. Haines says:—"In looking over my abutilons to-day, I was surprised by finding on a year old plant named Robt. George, a double flower composed of eight petals; ordinarily they have but five. I have frequently found two flowers attached to one stem, but have never seen or heard of a double abutilon before. Thinking it might be of interest to you, I send the flower and also single one of the same variety."

[We have not before heard of a double Abutilon, though from analogy with the hollyhock, althæa and other malvaceous plants, such might be looked for. A singularity in this is the increase of petals comes in the regular petaliferous whorl, and not from a change of stamens to petals as in the other cases cited.—ED. G. M.]

DOUBLE CAROLINA JASMINE.—Mr. P. J. Berckmans, Augusta, Ga., says:—"I enclose a couple of flowers of a Double Carolina Jasmine. It was found growing in the woods near Columbus, Ga., some years ago. It is a really nice greenhouse plant, as it blooms very early and lasts a long time—besides it is as fragrant as a violet".

[This beautiful improvement will add much to the interest of our greenhouses. The plant is almost hardy in Philadelphia, but requires to be kept over in a cool house to get all the good out of it that it is capable of performing.—ED. G. M.]

TREATMENT OF ONCIDIUM ORNITHORRYNCHIUM.—"Subscriber" says:—"Will some of the readers of the MONTHLY give me some information concerning the treatment of Oncidium ornithorrynchum."

FLOWER QUERIES.—The following questions of general interest have been handed in by Miss M. W. of Quaker Hill:—"As my queries last April were so kindly answered by several of the readers of the MONTHLY, I venture to come again and solicit more information on a subject which must interest many of your readers, as well as myself.

Though interested in every branch of horticulture, I am especially so in the culture of plants which produce fragrant flowers. Will some one be so kind as to enlighten me in regard to the Cape Jasmine, what special treatment it requires, &c.? Will the Rhyncospermum jasminoides grow as a house plant? Ought window plants to be turned? Why is not the Devoniensis a favorite among rose growers? I can think of no fault it has, except it is not a free bloomer. Among nearly one hundred varieties which I cultivated last summer, it was my favorite. I think it perfect in form (the bud) color and fragrance. Are the Marechal Niels which florists grow for cut flowers usually grafted plants?"

SHADING GREENHOUSES.—R. L. B., Des Moines, Iowa, writes:—"I would like to know through the MONTHLY of a shading for glass in summer, other than the usual lime wash, which I believe destroys the putty and paint on the sashes. A wash that will stick on all summer, and not be too hard to get off in the fall: to be applied on the outer surface of the glass. Also, what would make permanent shading, where a person did not want to incur the expense of colored or ground glass."

[As so far nothing has been entirely satisfactory to the editor, we give this query to the attention of our correspondents; all the methods that we know of want repeating too often, or are too hard to get off in the fall, or else injure the paint. There ought to be something better known.—ED. G. M.]

PLANTS FOR NAME.—W. E., Belvidere, N. J., sends camellias and roses for name, but they were packed in dry cotton, and dried to a "scrump" when opened.

BANANAS.—Mr. James Greenhalgh, gardener to G. G. Green of Woodbury, N. J., sends us a Banana fruit which weighed four ounces. He had three hundred such on a plant eleven feet high. This would make a bunch of about seventy-five pounds, and is a remarkably good success. We often wonder the Banana is not more grown as an ornamental plant. It grows well in the open air of Philadelphia during the summer, and we once saw one fruit in the open air. They may be kept in warm sitting-rooms in winter, or anywhere where it is not damp. Dampness rots them.

FRUIT AND VEGETABLE GARDENING.

SEASONABLE HINTS.

Many persons take grafts of currants, gooseberries, grapes, quinces and other things off in the winter season, tie them in bundles and put in sand boxes till spring. One trouble is that if the temperature of the cellar or other preservatory is much above freezing point, they sprout before the weather out-doors is ready to receive them. It must, therefore, be an object to get these out at the earliest possible moment that the ground is fit. Those who take the cuttings in spring and put out at once, had better shade the cuttings for a little while. Light is an enemy to the production of roots.

Grafting can be continued till the buds of the trees are nearly pushed into leaf. Sometimes, from a pressure of other work, some valuable scions have been left on hand too late to work. It may be interesting to know, that if such scions are put into the ground much the same as if they were cuttings, they will keep good for six weeks or two months, by which time the bark will run freely, when the scions may be treated as buds, and will succeed just as well as buds taken from young summer shoots.

Strawberry beds are very frequently made at this season, and though they will not bear fruit the same year, are much more certain to grow, and will produce a much better crop next year than when left till next August. Though it is a very common recommendation, we do not value a highly manured soil. It should be well trenched or subsoiled; this we consider of great value. In rich soils there is too much danger of having more leaves than fruit.

In planting dwarf pears, it is very important to have them on a spot that has a moist subsoil, either naturally, or made so by subsoiling or mixing some material with the soil that will give out moisture in dry weather. Trees already planted on a dry gravelly-subsoil, should have a circle dug out two feet deep and two or three feet from the tree. This should be filled up with well-enriched soil. If the dwarf pear does not grow freely, it is a sign that something is wrong. It should at once be severely pruned, so as to aid in producing a vigorous growth, but in pruning do not cut back the vigorous healthy wood, and leave the starveling stuff. It is a wonderful sight to look at the average pruner of dwarf pear trees. All the wood, weak and strong, is shortened alike. The object should be to help those which have already done well. A good top dressing is also a good thing for a weak growing dwarf pear tree. There is some prejudice against dwarf pear trees. As a source of profit few could make them compete with standards, but the few who would take pains to understand them might. They are very nice things for those who understand them well, but poor for those who believe nature is the best model.

In grape raising, people seem to go to extremes in management. A few years ago the poor plant was in leading strings. It dared not make one free growth, but it was pinched and twisted into all sorts of ways. Now the "prune not at all" maxims are getting headway, and this is as bad, if not worse. First grape growing was such a mystery it took a life-time to study it, and the "old vigneron" was an awfully sublime sort of a personage. He is now among the unfrocked and unreverenced. But there is great art in good grape treatment; and yet this art is founded on a very few simple principles. For instance, leaves are necessary to a healthy growth; but two leaves three inches wide are not of equal value to one leaf of six inches. To get these strong leaves, see that the number of sprouts be limited. If two buds push from one eye, pinch out the weakest whenever it appears. The other will be strengthened by this protective policy, and the laws of trade result in favor of larger and better leaves on the leaf that follows. Allow no one shoot to grow stronger than another. If there are indications of this, pinch off its top. While it stops to wonder what you mean by this summary conduct, the weaker fellows will profit to take what properly belongs to them. There is little more science in summer pruning than this; but it takes some experience, joined with common sense, to apply it. This, indeed, is where true art comes in.

South of Philadelphia, the more tender kinds of garden vegetables may now be sown—beans, corn, cucumbers, squashes, etc.—that it is not prudent to plant in this latitude before the first of May; and tomatoes, egg-plants, etc., may also be set out in those favored places. Cucumbers, squashes, and such vegetables can be got for-

ward as well as tomatoes, egg plants, etc., by being sown in a frame or hotbed, and potted off into three-inch pots. They will be nice plants by the first week in May. Rotten wood suits cucumbers and the squash tribe exceedingly well as a manure. Tomatoes and egg-plants that are desired very early are best potted, soon after they come up, into small pots. They can then be turned out into the open air without any check to their roots. Of course, they should be gradually inured to the open air—not suddenly transferred from a warm and moist air to a very dry one.

Few things mark a well-kept garden better than an abundance of all kinds of herbs. Now is the time to make the beds. Sage, thyme and lavender grow from slips, which may be set in now precisely as if an edging of box were to be made of them. They grow very easily. Basil and sweet marjoram must be sown in a rich warm border.

Early York cabbage for early use should be set out early in this month. It is an excellent plan to make the holes with a dibble first, where the cabbage is to be set; then fill up the holes with manure-water; and after the water has soaked away, set in the plants. It is rather more laborious than the old way, but the cabbage grows so fast afterwards that it pays pretty well.

It is not a good plan to cut all the asparagus as soon as they appear. A few sprouts should always be left to grow from each, to strengthen the plants.

Celery, with most families is an important crop, and should be sown about this period. A very rich moist spot, that will be shaded from the mid-day April sun, should be chosen; or a box in a frame by those who have the convenience.

Bean-poles may be planted preparatory to sowing the Lima bean in May. When bean-poles are scarce, two or thee hoop-poles, set into the ground one foot apart, and tied together at the top, make as good a pole, and perhaps better.

Peas should be sown every two weeks for a succession—do not make the soil very rich for them.

Lettuce, for a second crop of salad, should be sown about the end of the month. The Drumhead cabbage is usually sown for a summer crop; but the old kinds of Cos lettuce would, no doubt, be found very valuable in rich soils.

COMMUNICATIONS.

PEACHES ON THE NORTH RIVER.

BY H. M. ENGLE.

In answer to a question in January Number of GARDENER'S MONTHLY, page 50, I can only say to V. B., Kingston, N. Y., it is very difficult to give proper information as to what varieties of peaches will succeed along North River, as the climate is different from ours along the Susquehanna.

As a rule the varieties having globose and reniform glands, are stronger growers and ripen their wood better than the glandless kinds; they will resist a lower degree of temperature, *i. e.* considering wood growth.

Those having flowers with large petals, which enclose their stamens and pistils more securely than the varieties with small flowers (or without long petals,) will be found more secure against late frosts. There are, however, exceptions to this rule, as some kinds bloom earlier than others, which I am not now prepared to designate.

THE POCKLINGTON GRAPE.

BY JOSIAH SALTER, ROCHESTER, N. Y.

I have become somewhat identified with the "Pocklington" grape, so much so that I get a great many inquiries as to my "real candid" opinion of its merits for general cultivation and for market purposes.

I have praised this grape at horticultural meetings, and other places, perhaps more than any one else, and I suppose that to be the reason for so many inquiries of me. I have been familiar with the Pocklington for five years; the first two years of my acquaintance with it the original vine was so overcropped as to retard its ripening and spoil its quality. It has, however, improved in quality every season since. This last year, 1880, the Pocklington was ripe here, Rochester, N. Y., fit for market about September 6th, but it is much better, with little or no pulp and with a honeyed sweetness by 15th or 20th of September, and fully ten days earlier than Concord on the same grounds. It hangs well on the vines till destroyed by frost. The Pocklington is a seedling of the Concord, just as strong and vigorous a grower, fully as hardy to withstand the winter's cold and summer's fluctuations in temperature, to resist mildew as its parent, the Concord. I have no doubt whatever,

that wherever the Concord will succeed at all the Pocklington will succeed better, on account of its earlier ripening. It is a white grape, with a greenish golden shade, of the largest size both in berry and bunch, and very heavy and showy.

It is a good setter, the berries setting on the bunch like corn on a cob, and might be improved by thinning the berries. But nothing of the sort has ever been done to my knowledge. The next question is, "Well, how about the quality? Is it foxy?" Yes sir, I must confess, to my taste, it is a little foxy; but less so, when thoroughly ripe, than any other fox grape that I know of. We have been waiting a long time to raise a fox grape that is not foxy, and I almost begin to despair. If some one says, how about the Delaware? I shall demand the proof of the Delaware being a Labrusca or fox grape at all; if I do not, its being a native American any way. This last fall I kept a bunch each of Lady Washington, Niagara and Pocklington till near the middle of December, on a plate in a close room. To my surprise, the Lady Washington, although with much the thinnest skin was apparently the best keeper. I have no doubt, with a little care, either of these grapes may be kept to middle of January in good condition. Well, as to quality? To my taste the Lady Washington is entirely the best. The Pocklington is the next best, and while we are in doubt as to whether we can grow the Lady Washington successfully, it being a hybrid, I think there is no doubt whatever that the Pocklington will thrive and do well over a longer and wider extent of country than any other good grape, not excepting the Concord; for where the Concord will do well, I believe the Pocklington will do better because of its earliness.

When I commenced to write this article I did not intend to make any comparisons with other varieties; for comparisons are odious, sometimes. But we must have some standard of excellence to go by. When I have said the Pocklington is a much better grape in quality than the Concord, I have been told, "Oh! well if it be better than the Concord that will do, the Concord is good enough for me." Now, sir, I wish it distinctly understood that the Concord is not good enough for me, but I have to take the best I can get. I have heard grape amateurs, grape critics, and those who have believed themselves excellent judges, declare the Pocklington to be the best grape they ever ate, better than any foreign or hothouse grape ever grown. When I hear such remarks I rarely say much, but I keep up a tremendous thinking, and long to inquire: "Did you ever eat a well-ripened Cannon Hall Muscat, a Muscat of Alexandria, a grizzley Frontignan or a Muscat Blanc Hative?" Or even a good Black Hamburgh, a Muscat Hamburgh or Golden Hamburgh, or even a grade lower say, a Golden Chasselas, a Rose Chasselas, or a common Sweetwater? But it is not fair to compare the quality of our truly American grapes with that of the best European varieties. While I cannot agree with my friends who think the Pocklington grape better in quality than the best hothouse grapes, I do think it will prove to be the best and most valuable purely American grape we may have for some years. And on purely American and of the Labrusca species, I think we shall have to rely for our crops of market and wine grapes in most localities of this latitude east of the Rocky Mountains.

I consider the Pocklington grape, the *white* "grape for the million." We have had scores of white grapes introduced, tested, proved wanting, and discarded within the last thirty years. But sir, the Pocklington has come to stay; it is of the largest size both in bunch and berry and the most successful white grape in taking premiums at the fairs that I know of. It is seen above all others, it attracts more attention and will recommend itself. It needs no puffing, the grape men cannot let it alone. Of other white grapes I consider the Lady the best of all of its season, both in quality of fruit, productiveness and hardy constitution, being a seedling of the Concord. The Lady will not interfere with the Pocklington, it being ripe and gone, if you choose, before the Pocklington is fit to cut. But still the Lady keeps well on the vines. This season of 1880, the Lady was ripe with me, fit for market by the 20th of August, the Moore's Early and Champion both together about 25th of August, the Pocklington about 6th of September, and Concord about ten days later. This sir, I submit, if acceptable, to your columns according to my judgment for what it may be worth.

EDITORIAL NOTES.

SPREADING PHYLLOXERA.—In the March number of the *American Naturalist*, Professor Riley shows that the phylloxera can be introduced by cuttings of vines, though not so probably as by rooted plants. In localities not infested by the

insect, he would prohibit the importation of both cuttings and plants. In countries where the phylloxera already exists, it is of course another matter. The great value of the American grape in Europe as a stock on which to graft the European sorts, is not that the Americans are free from phylloxera, but that they do not suffer so much from the attacks of the insect.

THE CODLING MOTH IN AUSTRALIA.—This miserable pest has made its appearance in Australia. In an address before the Melbourne Horti cultural Society, a Mr. Harbison spoke of it as a probable blessing to fruit growers, as tending to thin out the trees from overloads of fruit. Happy Mr. Harbison!

BIRDS AND WHITE GRAPES.—By an extract which we have recently seen from the *New York Tribune*, birds are fooled by the color of grapes, never touching the white ones. On the gable end of a barn we have large plants of Concord, Clinton, and Martha. The latter, a white grape, is the only one of the three they seem to touch at all, and of these they take the largest half.

KILLING THE CODLING MOTH.—Prof. Burrill has shown that a solution of Paris green engined over an apple tree about the time the codling moth appears, is a certain security against this destructive insect. By the time the fruit is fit for use, all trace of the poison has disappeared. Few persons, however, would like to use this terrible poison in this way, notwithstanding the insurance. There might not possibly be rain enough to wash it all away before use.

In the February number of the *American Naturalist*, Prof. Riley gives some details of carefully conducted experiments, showing that Pyrethrum powder is certain death to cabbage caterpillars and the potato beetle. One tablespoonful of powder was used to two gallons of water. In five minutes all the larvæ (ten cabbage caterpillars) were on their backs. There is no reason why the same may not be applied to the codling moth, if the Paris green be effectual. At any rate it is worth trial.

WINE-MAKING IN CALIFORNIA.—This industry continues to have an amazing growth in California. Sonoma county alone doubled its area of vineyards in this single season.

THE JEFFERSON GRAPE.—This will have an extensive distribution this season, and we shall probably know from actual experience how the delicious Ricketts' seedlings will do in different ocations.

THE RELIANCE RASPBERRY.—Mr. Satterthwaite, one of the most conservative of fruit growers when new varieties are in question, says there is no doubt but the Reliance is a great improvement on the Philadelphia.

WASHINGTON RATH-RIPE PEACH.—Under this name the *Florist and Pomologist* gives a colored plate of a variety looking very much like Crawford's Early. It is said to be an American variety. Do our readers know anything about it?

THE URBANA WINE COMPANY.—We are sorry to learn that this company, one of the pioneers in the remarkable success which has followed grape culture over the United States, is not a financial success.

MASON'S SEEDLING GRAPE.—The want of first-class white grapes ought to be filled before a long time. This one is much praised in the West as a hardy, vigorous grower like Martha, but larger and better every way.

LARGE CALIFORNIA POTATOES.—California can produce large potatoes as well as large fruits. Of a variety called "Burbank's Sport," a paper before us says:

"The yield was something remarkable, being over one hundredfold, several of the tubers weighing four and a half pounds each. The product of some of the hills which were weighed was from fifteen to seventeen pounds each, and one hill gave twenty-seven pounds from a single eye. They received only common farm culture."

VITIS CALIFORNICA AS A STOCK AGAINST PHYLLOXERA.—Professor Eugene W. Hilyard says:—"Among the resistant stocks most readily available to California grape growers, the native wild grape, Vitis California, deserves earnest attention. In its botanical character it stands near the wild species from which the Clinton and Taylor are derived. And while it does not seem to harbor naturally either variety of the Phylloxera, experiments made by planting it among infested vines, seem to show that, although some insects will migrate and attach themselves to its roots, it does not suffer in any sensible degree from this attack. It should be understood that under similar circumstances the roots of the Clinton and Taylor are also visited by the insect, but without injuring vitality."

THE PEAR MARKET.—Few men know more about marketing than Edwin Satterthwaite. He says that "there is one thing about pear culture of

which it might be well to remind those about to engage in fruit culture for market purposes, that the pear market is very easily broken down The consumption of pears is very small compared with that of peaches and winter apples. In winter there is no demand for pears, and during the greater part of the summer and fall.

the markets are so full of peaches, grapes, melons and other fruits that are generally preferred to pears, that only a limited quantity of these are wanted. And notwithstanding the great destruction of pear trees by blight, the quantity of this fruit sent to market has lately been so largely on the increase that it is evident the time is near at hand when none but those of the finest quality will pay for marketing at all, and that not for long distances; and though I think a few pear trees indispensable to every farm, I would not recommend planting them for a market crop."

VARIETIES OF APPLES.—In his report at Gettysburg, Mr. Satterthwaite gave the following as the best varieties of apples and peaches for Pennsylvania:—Early Harvest, Red Astrachan, Benoni, Porter, Blush, Smokehouse, Domine, Krauser, York Stripe, York Imperial, Fallawater, Ben Davis, Grimes' Golden, Smith's Cider and Ridge Pippin. Of pears he says:—Bartlett, Seckel, Duchesse, Beurre d'Anjou and Lawrence, and Manning's Elizabeth for an earlier sort, are the varieties universally recommended; and for those wanting a greater variety, Doyenne d'Ete, Beurre Giffard, Ott, Howell, Des Nonnes, Beurre' Superfine, Buffam, Rutter, and Vicar of Winkfield can be relied on as doing well everywhere.

NEW AND RARE FRUITS.

LANGFORD APPLE.—When in Geneva in the spring of 1879, the writer was much impressed with a large greenish-brown, and generally fine looking apple, shown to us by Messrs. Chase. It was remarkably heavy for its size, which we always take to be an unmistakable sign of a good keeper. There are, perhaps, enough of good winter apples in the North, but the South is deficient, and we believe the Langford seedling will be invaluable to them. It was raised by Mr. Thos. J. Vickers of Kent county, Md., who gives the following account of it:

"I think in 1852, or about that time, the original tree (a little switch) was dug up along a fence row, and planted near an old house, then neglected and forgotten until it began to bear. At that time there were no peach or pear trees or fruit of any kind grown for market in Maryland. This apple, by whomever tasted, was always pronounced a most delicious fruit, but I thought I could get a better apple from the nurseries and bought the most noted kind (winter varieties), and now I am grafting every one of them with this. It is known only in this immediate locality. The tree is now large and bears every year, and has done so without fail since it was seven or eight years old. I honestly think, considering its fine flavor, excellent keeping qualities, vigor and hardiness, it should be planted by every one planting an orchard."

SCRAPS AND QUERIES.

INSECTS ON APPLE TREES.—H. B., Painesville, Ohio, says:—"Please find a portion of an apple scion with insects on. Will you please name the insect in GARDENER'S MONTHLY, and its mission. I never saw anything like it before. I obtained a quantity of scions from Willowdale, Chester County, Pa, and find several such as sample sent. I have destroyed all the insects as far as seen, with the scion. Will there likely anything remain to develop insects injurious to the trees? I find this insect on Winesap only."

[These are nothing but the eggs of the Katydid, and will do no injury.—Ed. G. M.]

JAPAN PERSIMMON.—C. W. T., Bristol, Pa., says:—"I am sorry the Japan Persimmon is not going to turn out hardy in this latitude. I have eaten it grown on it's native soil, and thought it very fine. The specimens I partook of, were as large as a medium sized egg, and almost or quite seedless. In China it is called the Mandarin Plum."

FRUIT HOUSES.—I. C. W., Fishkill, N. Y., a correspondent who has had every success with these, promises to contribute a paper on the subject soon.

MURIATE OF POTASH FOR PEARS.—A correspondent inquires whether any one has had any experience with the imported article as a manure for the pear? He thinks it ought to be better than stable manure.

SPADES AND PLOWS.—J. B., Fredericton, N. B., sends another chapter, which as it would occupy several pages, we are sorry we cannot find room, as there are some good points in it. For instance, he notes that in a large number of English nurseries, a great number of gardeners are found employment until they have situations. There is very often really nothing for these men to do. It is thought to be the nurseryman's ultimate interest to take care of them, and in such cases it is no object whether they make sticks or labels by hand or not. The main point of J. B's. article is that circumstances alter cases. That it is not whether the way one thing is done, pays better in one place, than the way the same thing is done in another place, but whether each plan fits in better with the separate machinery for the whole business. The true way to judge of the value of different methods in different countries is to judge of the profit each makes on the whole investment. J. B. believes, for instance, that if John Bull invests one thousand pounds in a nursery or a vegetable garden, he would make just as much proportionate profit as one with American progress would do on five thousand dollars, and use sixty yards of string, or make labels by hand in the bargain.

FORESTRY.

COMMUNICATIONS.

GROWTH OF A WALNUT TREE.

BY B. F. SMITH, LAWRENCE, KANSAS.

Reading in your January number that you recently saw some walnut logs in Indiana that had been sold for one hundred dollars, called to mind that when I was a boy ten years old, living with an uncle in Illinois, that in the year 1849, I picked a walnut out of the edge of the ground near the house, which had just began to sprout, and with childish curiosity planted it to see if it would grow. In a fortnight it came up, and I drove some small stakes around it to keep the chickens from scratching it up, then called my aged grandmother's attention to it and told her I

was going to raise some walnuts some time. She replied that I was a foolish boy, and that I had better have planted a peach or an apple tree, as there were thousands of walnuts growing all over the woods; which at that day was true, but they are all gone now. Notwithstanding her reproof I nursed and cultivated my little walnut carefully two or three years, or as long as I lived with my uncle, and after I left his home it received the best of attention on my account; but in the course of time he disposed of the farm, and the new owners moved the house away, and chopped down an elm, a wild cherry and a mulberry tree that stood a few feet from the walnut; but as my walnut had begun bearing good-sized crops of walnuts it was spared.

This was about the year 1856. Every few years since that time I have been on this farm, and with pleasure have noticed the rapid growth of my tree. The fences of the farm have been so changed that the tree now stands in the middle of a twenty-acre field usually planted in corn or sown in wheat.

In the spring of 1879, when it was thirty years old, I was visiting my old friend and schoolmate of my boyhood, Joseph N. McKee, who now owns the farm, and I called his attention to my old friend, the walnut, and bade him spare it on my account, as I wanted to see, if I lived to be an old man, how large it would grow. We measured it, and were astonished to find the circumference was five feet and three inches, one foot above the ground. This farm is three miles south of Edwardsville, Madison County, Illinois. Jos. N. McKee, the owner, values it now at $125 per acre; but if ten acres of it had been planted in walnuts at the time this was planted, the ten acres would be worth probably three or four times as much as the whole farm, which contains eighty acres.

[Exact figures like these are always acceptable. But those going into the forestry business have to consider that what one tree does on an acre of ground is but little guide to what fifty trees would do on the same acre,—or what one tree on one acre, helped by the culture we give corn or grain, would do, as against fifty left as a forest to struggle along as best they may on the same acre. We have also to remember, that in corn or wheat we have always some profit every year, and this has to be computed with compound interest as against the trees which for so many years have brought in nothing. Fifty trees will not grow as fast as one, as already noted; but if they did, it might perhaps be a question whether $6,000 could not be had in thirty years from the same land, if we charge interest on crops and the value of the land against the trees and in favor of the farm crops. We do not know that the result would be against the trees. We only say that it is such questions as these that have to be considered in discussing profitable forestry.—Ed. G. M.]

GROWTH OF THE LIVE OAK.

BY PROF. C. S. SARGENT.

It is generally supposed that the Live Oak grows very slowly. This is not always the case. Dr. Charles Mohr, of Mobile, sends the following measurements of a Live Oak which was planted in 1852 near Stockton, Alabama, in sandy pine lands of rather better than ordinary quality. Dr. Mohr's measurements were made in March, 1880. They are: Girth of the trunk, 7 feet ½ inches; height of trunk to first limb, 6 feet; length of the two main branches, 30 and 33 feet; diameter of the largest branch, 10 9-10 inches; total height of the tree (estimated), 50 feet.

EDITORIAL NOTES.

Russian Mulberry.—A correspondent sends us a circular issued in the West, offering the above, and asks what is it? It offers the "cut leaved Russian" and the "common Russian." The former is praised especially as a fine timber tree.

The former is Morus nigra laciniata of old English catalogues, and the latter Morus nigra, the common mulberry of European gardens. We think it quite likely that the wood of the trees would be valuable in the Northwest where the tree is offered. The timber is pretty much of the same character with that of the Osage Orange which is allied to the mulberry.

Timber in Pennsylvania.—Statistics, such as they are, show that thirty years ago Pennsylvania had about 25 per cent. of its area in timber trees. In an address at Harrisburg, Mr. Meehan remarked in reference to this, that there was probably as much as that to-day, and that there had been no material change in the forest area since that time. A very extensive travel through the State confirms this view. Though thousands of feet of timber in the mountain regions are

annually cut down, the land is not cleared, but grows up again. In the Schuylkill coal regions especially, last fall, the writer stood on one of the highest points, and could see nothing but timber lands in every direction as far as the eye could reach. Most of it had been cut over, but it was growing up again. However, in a pamphlet before us, Mr. S. P. Eby, of Lancaster, takes strong exception to this statement of the forest area, and yet he furnishes figures himself which show that Mr. Meenan was not far wrong in his 25 per cent. estimate for the whole State. He says that in 1877, carefully prepared estimates gave the following figures:—Lancaster County, 12.1 per cent. of forest; Chester, 14; Berks, 15; Lebanon, 21.2; York, 18.7; Dauphin, 24.7. Now it must be remembered that these counties are among the richest agricultural counties in the State. They are in a great measure valley counties, and in which there is always a greater temptation to clear off and cultivate, than in the higher mountain and rocky regions. Yet Mr. Eby's own figures show an average of 17.6 of timber area for these counties, or two-thirds as much as Mr. Meehan claimed for the whole State; so much of the mountain region of which is just as nature left it. Twenty-five per cent. ought not to shock Mr. Eby with his own figures before him.

LITERATURE, TRAVELS AND PERSONAL NOTES.

COMMUNICATIONS.

ECCENTRICITY OF THE ANNUAL LAYERS OF WOOD IN PLANTS.

BY R. C. POPPEY, POUGHKEEPSIE, N. Y.

In the GARDENER'S MONTHLY this subject was briefly touched, and knowing it to be an open question yet, I take the same liberty as others did before me, to give the result of my investigation. My attention to this problem was first called by Prof. Hickok, not Dr. H., as stated in your MONTHLY. I attended the meeting of our Society of Natural Science, the evening he read a paper on this subject, in which he demonstrated that the layers of wood were thickest on the underside of trees that sloped, and if I recollect rightly, he based his theory principally upon one large tree that grew on a steep side hill. This one he cut down and found the layers where he hoped they would be, and I believe in the Professor's eye, every tree sloped more or less. His essay was considered very nice, but there it rested. My first step was to determine why trees leaned in one or the other direction; this I soon discovered to be owing to the main growth being on that side, and this readily revealed to me that that was also the course of the main roots—even so with such as did not apparently slope. I then began to use my saw and spade, and found that on whichever side the layers were thickest, I could always locate the main root. Now in order to avoid misunderstandings, and a disastrous collision with undeniable facts in "Plant Physiology," laid down nearly correct, by men who made this a life time study, let us see what they say about the root and its function, so as to go over the whole ground intelligently. Wood says, "the root does not absorb moisture by its whole surface indiscriminately, but only by the spongioles at the extremities of the fibrils, where the pores are not obstructed by the epidermis. From the spongioles it is conducted by the vasiform tissue of the fibril to the vessels of the main root, and immediately carried up the stem and distributed to all parts of the plant." All due respect for Prof. Wood. But in pointing out the course of the sap as it is absorbed from the earth and conducted to the stem, he is somewhat inexplicit, and apt to lead to a grave misunderstanding, be

says, "from the spongioles it is conducted by the vasiform tissue of the fibril to the vessel of the main root, and immediately carried up the stem, and distributed to all parts of the plant." This would imply that all plants have but one root, to which all the others carry the sap, and that that one alone conveys it to the stem, and through some agency it is equally distributed to all parts of the plant. But I trust that all who have read this book, were sufficiently informed, and knew that aside from a root superior in thickness, and perhaps in length, there are others which I should term subordinate, that perform the same duty, only on a reduced scale, all of which are furnished with spongioles and fibrils. It would be difficult to say definitely how many leading roots there are to every plant; but let there be many or few, among them is always one superior to all, especially in trees. This one beyond doubt carries the largest quantity of sap to the stem; as it will be seen that the branches on that side are of a more vigorous growth, and occasionally in favorable seasons a strong sheot or branch is forced out, where no one would have suspected an eye or bud to be; showing that the activity of absorption by the roots was far greater than the exhalation by the leaves. Now let us see what Asa Gray says in reference to roots and their functions. He is far more elaborate than Wood, but in substance it is nearly the same. He says, "the fluids taken in by the roots are carried up through the stem to the leaves, and after its assimilation by the leaves, is carried down in the bark or cambium-layer and distributed throughout the plant." The word "distributed" used by these able botanists, is an ill-chosen word, and is likely to convey a wrong conception if the true meaning is taken; it carries the idea with it that it is equally distributed to each part of the tree in equal proportions. A glance at stems and branches will convince any one to the contrary. The setting off of material which is carried into the plant or tree by the roots, has its destination assigned, and goes just where it is intended it should.

Further on Gray says, "now when the proper materials are brought to the growing parts, growth takes place." Now which are the parts that do not grow when the growing season has arrived? Every part then grows,—roots, stem, branches and leaves. Both these authorities agree that the sap is carried to the tree, or plant by the roots, and that it is there converted into vegetable fabric. The question now arises how is this done? Gray says it cannot be explained by any mechanical law; but we see that it is done. Now is it distributed to all parts of the tree in equal proportions? From the looks of the stem and the different sizes of the branches we must conclude that is not, as it invariably shows a one sided growth; that is on one or the other side of the tree the growth is strongest. This proves that the main roots are on that side. Now what forces a bud to develop into a branch? And what does it prove? It shows that the activity of absorption is greater than the exhalation. Growth is an aggregation of cells; and growing is a multiplication of cells, and this is greatest where absorption is greatest. Now if absorption outbalances exhalation to too great a degree, a new exhalator will be necessary; but before this one is ready, the stem must accommodate the new fabric, which is constantly made on that side, until the new exhalator is developed enough to do its duty.

The eccentricity of wood layers, more on one side than on the other is certainly owing to some cause, and the most plausible is, the unequal setting off of vegetable fabric; and that it is always on the side where growth is strongest, proves that the absorption there is greater than exhalation, and through this stoppage the vegetable fabric is forced to fix itself there.

SEX AS AN AID IN PLANT ADJUSTMENT.

BY A. J. M., BERLIN HEIGHTS, OHIO.

The evolutionist believes that change of conditions and diversity of environment necessitates corresponding, or all changes and unlikeness there is in plant and animal life.

We find most plants can be propagated by either divisions or seed, while it is only the lowest order of animals that multiply by divisions. It is, also, only in the earliest or lowest order of plants that multiply only by divisions and offsets. Plants which multiply by divisions are subject to but little change in the surroundings; to continue its kind, growth must be continuous, and as M. De Quatrefages says, this is rather a form of growth than true generation. Such plants when they become subject to greater climatic changes, and could not adjust themselves would become extinct; while some by these changes, which either exhaust or obstruct growth, would be forced into bloom and seed. By this creation or differentiation of sex, seeds

were developed which contained all the characteristic of the parent plant, and could lay dormant through the storms of winter and be forced into life by the heat of summer, and thus many species would be preserved through their sexual attributes. During these variations of climate in which seed is matured, the seed is subject to different conditions from those in which growth was maintained, and the seedlings could in time resist greater extremes, and thrive under conditions quite unlike those of its ancestors.

Again, seedling plants of the same parent by growing in different soils and different elevations and climate, would vary from the parent. The recrossing of these would produce offspring quite unlike the parent, and in time distinct species All this is brought about without any object or design by the simple laws of growth and adjustment, by action and reaction.

Darwin, in his work on Plants and Animals under Domestication, quotes Gallesio, "that seedling oranges in Italy were larger, more productive, and hardier than former kinds raised by grafts; and more was effected for the naturalization of oranges in Italy by the accidental production of new kinds during a period of sixty years than in many ages previous, by grafting old varieties."

EDITORIAL NOTES.

MEGARRHIZA CALIFORNICA.—Plants are commonly divided into annuals and perennials, but under these names are many separate classes. A strawberry, for instance, is regarded as a perennial, but there is probably never any part of a strawberry plant that is more than a year old. New leaves, new buds, new stems, new roots are produced every year, and all of the past die away as soon as the new series is fairly formed. Then there are other perennials, trees, which have an enduring trunk above ground, and again others which if not possessing perhaps perennial "roots," have at least what are called such, the roots being rather perennial underground trunks, which increase from year to year in size as ordinary tree trunks do above the ground. Sometimes these underground roots reach an enormous size, often to an extent that is quite remarkable. In the western portions of our country some of the Cucurbitaceæ, or the cucumber family, take on this huge underground growth. On the plains of Western Kansas and Eastern Colorado the writer has collected specimens of a real cucumber, Cucumis perennis, which has roots as large as a wheelbarrow. It may be said that wheelbarrows are of various sizes, so are these roots, and we do not feel that any one will go wrong if they form their own ideal of what the illustration should convey.

The true cucumbers have fleshy fruits, but there are some Cucurbitaceæ which have dry fruit, and in this last section they have in California a plant called Megarrhiza Californica, which has an underground stem rivalling that of the perennial cucumber, and known from its huge size as the "Big-root." Like many in this section of the cucumber family it has a prickly fruit, as seen in our illustration.

MEGARRHIZA CALIFORNICA.

But a very interesting feature is in the seeds. In most Cucurbitaceous plants, the cotyledons or seed lobes push up from the ground and expand into green leaves. All who have watched cucumbers or pumpkins grow know how this is. There are other things, peas for instance, which do not change the form of their seed lobes, but let them remain under ground, while the young stems themselves push up above ground. This cucumberite is remarkable as behaving like a pea, and not as ordinary cucumbers.

Again, this sturdy fellow has a will of its own in the way the seeds grow. Any one who has

watched monocotyledonous seeds grow knows that the seed does not split as in beans, but what appears a rootlet, pushes out from this apparently solid seed mass, and the young plantlet pushes out afterwards from this apparent rootlet. Asparagus, Indian corn, onions, or such things, will show this, though often the plumule, the part which makes the stem, starts to grow soon after leaving the caulicle. In some plants, especially in the Musaceæ or Banana family, there is an inch or more between the cotyledonary mass, and the point from whence the foliaceous growth springs The Megarrhiza is remarkable in this that while being a dicotyledon, its manner of germination is like the monocotyledons.

Beside all these anomalies which will make the plant very welcome to those who love to watch the various processes of nature, the beauty of the vine and its rapid growth will make it very acceptable for the summer decorations of our gardens. Though a California plant we are indebted to the enterprise of an energetic German firm, Haage & Schmidt, of Erfurt, for its wide dissemination to lovers of flowers. We shall no doubt see it growing in many gardens this summer, from seed which they have distributed among the firms which deal with them. Our sketch shows the fleshy seed, and the spike of male flowers alongside of the globular female one and which form the young fruit.

Eccentric Growth of Trees.—Mr. Poppey gives a suggestive paper on this subject in this number, and offers the correct explanation. Wood is formed by the germination of new cells from the mother cells. The size or abundance of these cells depends on the vital power of the mother cells. When they are able to absorb a large amount of nutrition the result is seen in quantity, and we have a thick layer of wood; when weak, that is to say when the vital power is low, they get little food, and the woody layer is thin. The thickness of an annual woody layer then depends, first, on the vital power of the mother cell, and secondly, on the supply of food to that cell. There are so many secondary causes influencing these primary ones, that where the two classes of causes are not distinguished discussions follow. As usually discussed, the disputants are often both right and both wrong.

Botany in Philadelphia.—The progress of Botany in Philadelphia, of late years, has been very satisfactory to the devotees of this interesting science. Different individuals and societies have vied with each other to such an extent, that between one and another almost anything we may need in either botanical works for reference or botanical specimens for comparison, can be examined,—for it is pleasant to say that most of the possessors of this rich material feel that they hold their treasures "for the benefit of the whole community." Among the recent additions to these botanical riches are the herbariums of Dr. Rugel, who collected for the celebrated Shuttleworth, and of Dr. Zeno Pitcher, in whose honor Salvia Pitcheri and Clematis Pitcheri were named. These have been purchased by Isaac C. Martindale, who though of Camden, N. J., is regarded by Philadelphia botanists as "one of them." These original herbariums are always regarded as of immense importance by those who have to compare disputed plants with an author's original collections.

English Names.—"Mr. Meehan, in his Gardener's Monthly, objects to these, on the score of there being more than one applied to the same plant, but this seems to us no reason whatever why people should not aim at having English names for their plants, any more than the fact that we use and prefer one Latin name, while reference to a dictionary of plants or botanical book will show that it is only one of eight or nine different names applied by botanists to the plant. We rather take an interest on the opposite side of the question, and enjoy a variety of English names for a plant, not necessarily that we should use them, but as illustrating its history and character. For instance, in Mr. Sargent's catalogue of trees he gives, and very wisely, the English names applied by the settlers to different species in different States and districts, a plan that is interesting to us, and very often one gets from these English names some idea of the use or beauty, or situation in which the tree grew. The favor which *The Garden* has shown towards English names seems to irritate a little the botanical mind; we are very sorry, but we feel assured that, no matter what difficulties are in the way, the future will see a recognizing nomenclature of plants and all beautiful living things in our own tongue, which now is used by so large a number of people in many lands, and bids fair to be the most universal of languages."

[The *Garden* mistakes the position of the

GARDENER'S MONTHLY. We have no objection to popular names. We expect to use "Sweet William," "Pansy," and hosts of other good old names to the end, and have no doubt we shall just as acceptably use many a name not yet born. Our objection is to the forcing of them before they grow naturally,—the insisting on making a "popular" name, which the popular mind will probably reject for one of its own. The *Garden* might christen Myosotis palustris as "Swamp Scorpion Grass," but this will not stand a moment longer than some touching story comes along and insists that the flower shall be "Forget-me-not." The trouble with this forcing of common names is that there is no authority for any. The *Garden* may insist that a certain plant shall be called "Butter and eggs;" the *Chronicle*, that it shall be "Curds and whey;" the *Gardener's Magazine*, that it shall be "Scollop'd oysters," and the *Journal of Horticulture* that it shall be "Pussy in a corner." But after all these officials have had their say, Dame Gander down in Goose's Hollow calls it the "mouse in a rat trap," and somehow the name goes in spite of the doctors.

The point in the number of Latin names is not well taken. We all agree to stand by the original name. When we have a dozen of them we do not "take our choice," but we take the right one, and we know how to take it.

We repeat, there is no objection to common names. We like common names. But they must become common before they are entitled to that character. True common names grow—they are not made.—Ed. G. M.]

EARLY RIPENING.—New York, Feb. 10th, 1881. —Editor of GARDENER'S MONTHLY—Dear Sir:—From a review in the *Temps*, Paris newspaper, I gather that M. Tisseraud, at present one of the French Ministers of State, owner of an experimental farm at Vincennes, near Paris, traveled some time ago in Sweden and Norway, and published a rather interesting "memoir" on vegetation in high latitudes. M. Tisseraud has found that wheat sown at Vincennes, imported from Norway, has ripened twenty-nine days before the regular French wheat; other cereals fifteen to twenty-five days sooner. This tendency to ripen early will last for some time, until the imported kind has got "acclimatized." Another remark of M. Tisseraud is that vegetables and flowers when forced in manure beds, greenhouses, &c., lose very much in flavor and odor, and sometimes by over cultivation even get insipid. That these same vegetables gain in intensity of their aromatic properties when cultivated in high latitudes, he instances onions, parsley, horse-radish, &c., and suggests that Norway seed grown in France could, for some time, produce as good results in France. That both qualities, however, aroma and early ripening, would gradually die out again. Please, Mr. Editor, give us your opinion, and tell us if similar good results might not be obtained in this country by using seed from Canada, or Oregon, or Washington Territory, or even Norway.

[These facts are well known, and turned to profit in the United States. Peach trees forced for a few years in a hot-house, will attempt to bloom earlier when removed to a cooler climate, and the same variety of peach taken from the North to the South, will not bloom at the same time that a tree of the same variety will, raised in the South. Farmers continually have to get fresh seed of oats and other cool-country plants, as in time the kinds give out, and seedsmen usually grow their pea and some other crops far in the North, as they retain their best characters only for a few years. In short, it is as true of motion in all departments of nature as in the motions we see everyday about us. A wheel goes round for some time after we take our hands from it, and these life movements in plants show some results some time after the first impelling cause is out of the way.—Ed. G. M.]

COMMON NAMES OF PLANTS IN AUSTRALIA.—We note by an article in the *Leader* of Melbourne, Australia, that the reaction against the extravagant endeavors to coin common names for everything that has not had the good fortune to meet with one generally acceptable, is reaching this far away corner of the globe. It appears the name of "Wattle" is being given to all sorts of things, and no one knows what the other one means. They are discussing it, as our agricultural papers discuss "What is Blue Grass?" Unfortunately the *Leader* in striking around, hits Americans, and tells its readers that if they do not look out with their common names, they will be as bad as we are; for he says he found in looking over the Report of the United States Department of Agriculture for 1875, all of the following names intended to apply to the Douglass Spruce: As Douglass Fir, Red Fir, Black Fir, Douglass Spruce, Red Spruce, Black Spruce, Hemlock, Oregon Pine,

Western Pitch, Bear River Pine, Swamp Pine, and perhaps others." Moreover, it does not think the English name forced on the plant any easier for the beginner than the botanical one, and asks what do we gain by saying "Japanese False Goatsbeard, as recently proposed over Astilbe Japonica?"

INFLUENCE OF LIGHT ON COLORED LEAVES.—The *Compte rendu du Congres de Botanique et d'Horticulture de* 1880, contains a valuable paper by Professor Ed. Peynaert on this subject. He shews that the influence varies with the class of colors. In what gardeners would call the Blood-leaved class, high vital power had as much to do with color as light. The half starved leaves of a purple hazel or blood-leaved beech, are very early green, and the leaves of these, the Blood-leaved beech, and others, get green as they approach the "sere" of autumn. Also, it is well known that when a blood-leaved tree is transplanted, and its vital powers necessarily interfered with for a season or two, it has much paler leaves than when it becomes well established. This little fact has great practical value, for those who would have the richest color from their blood-leaved trees should feed them well. Golden colored leaves, as Golden Poplar, Golden Catalpa, Golden Geranium, are favored by diminished light. Glaucous colors, such as in Cedrus Deodora, some forms of Lawson Cypress, &c. are favored by light generally; he has found a variety of Begonia, "Louise Chretien," to be an exception. In this the glaucous color is favored by shade.

SCRAPS AND QUERIES.

ORIGIN OF TREES ON THE PRAIRIES.—Mr. Lorin Blodgett writes:—"I read with interest your recent address on "The Origin of the Prairies," merely a notice in the daily papers. I hope you will give it in full in the MONTHLY.

I had the fortune, more than forty years ago, in 1839–1840—to travel many hundreds, almost thousands—of miles over these prairies; beginning at the small ones, of which there are a few in Western Ohio, set like gems in the then dense woodland, and going west through constantly enlarging dimensions, until in Illinois, and beyond the Mississippi, some of them stretched a hundred miles or more.

These prairies were then singularly inspiring and beautiful—as the world was at the beginning—and it appeared a misfortune to disfigure them with the rough occupation of the Hoosier settler. I have walked a prairie ridge on the rolling prairies of Illinois and Wisconsin for an entire day without seeing a fragment of timber bounding the horizon. Everywhere, even then, the origin of these prairies was discussed, and while the general agreement was that the annual fires kept them treeless, it was also clear that in the beginning water was the leveling agency. I have never seen a satisfactory illustration of the vegetation, or flora of the prairies. The almost equally beautiful "Oak Openings," best developed in Wisconsin, lying alongside or surrounding the prairies everywhere, had an entirely different flora. Yet these were annually burned over, and often severely, thinning out all the smaller trees. The soil of the prairies is not that of a lake or river bed, nor is there any evidence of water subsidence long continued. Yet in Iowa and other rich sections it is penetrated with *humus* and vegetable remains for almost ten feet below the surface. The composition of the prairie soil proper is quite uniform, always from one to five feet of dark, dry loam, with lighter and more retentive soil below, ending always in a stiff sheet of clay, with cemented gravel mixed bottom. Below this very general formation is often loose sand and gravel, as in Wisconsin, or limestone, or the lead-bearing formations, so general in the West.

In 1853, I saw well-grown forests almost, on the prairies near Rock River, which were naked when I saw them in 1839,—the farmers having planted a few acres, usually of locust or poplar. I have seen nothing of the recent results of forestry planting. Who has reported on them, or who will do so?

The prairies deserve a closeness of study they have not yet received—their soil, vegetation, contour and characteristics generally. The fires by which the grass is, or was annually burned, are less formidable than is supposed. I have walked across a line of this creeping fire many times. The turf is very strong and peculiar, but the grass short.

I hope you will give us your address in full."

[The address referred to was a verbal one, and we have no manuscript thereof. Notes were made for the public body before whom the address was delivered, and the abstract will probably appear in their proceedings; if so, we may reproduce them in the GARDENER'S MONTHLY, if

we can find room without crowding out the valuable original contributions of our correspondents.—Ed. G. M.]

FREEZING OF THE SAP OF TREES.—W. H. P., Chicago, Ill., writes:—"I see that the editor of the MONTHLY still allows the sap-freezing controversy a place in his columns, although he keeps himself modestly or cautiously out of the arena, generally. I think it might be well if he would insist on his correspondents defining a few things, or better yet, if he would define them himself:

1. What is it that is said to be frozen, and where?

2. What is sap, and what difference is there in it when the tree is growing and when it is dormant in the depth of winter?

3. Is it the freezing of the sap, and the alteration of its constituents that kills, or is it the expansion of the fluid in the act of freezing that bursts the vessels and disorganizes the plant?

4. Is the sap really fluid in well-ripened wood in a perfectly dormant state, or is it so viscous that a great degree of cold will have little effect on it, as in the case of molasses?

5. Is the freezing of the returning sap or the ascending sap equally fatal to the organization?

6. Is it true that the more perfectly the tree or shrub ripens its shoots, relieves its cells, &c., of fluid, the greater will be its power of resistance to frost?"

[Those of our correspondents who believe that "sap" "freezes," can answer these questions if they desire.

For our part it is not at all necessary that a correspondent should agree with the editor in order to have his views find a place in our columns,—nor do we always feel called to criticise views differing from our own. We like to give everybody a free chance to advance or defend his own views.—Ed. G, M.]

SOUTHERN NOTES.—A correspondent sends us an extract from a letter by Wm. Izzard Bull, apparently from some part of the far South. The letter is sent it seems for some opinion on the points referred to. It is said that varieties in a forest never intermix. Thus if a wood contains black oak, white oak, and red oak, the pollen of one species will not affect the other. Each produces seed which reproduces its own kind. This is sufficiently correct to be the rule. Some botanists believe that hybrid trees occasionally occur. Another point is that the Live Oak is a misnomer. We never knew certainly why the tree was called "Live Oak." This correspondent believes it was from its evergreen character. He does not regard it as a true evergreen. The leaves fall off as the new ones come. But our definition of evergreen is one which always has some green leaves on it. It is the tree we are to regard as an evergreen, not the leaves.

Of the Wax myrtle—Myrica cerifera—it is said our grandmothers made candles from the wax in the seed. It might be added that our fathers and mothers did the same thing in Eastern New Jersey, if even some of our brothers and sisters do not to this day, though perhaps coal oil has by this time found out the last waxberryman. We are much obliged to our correspondent for Mr. Bull's interesting letter.

RHODODENDRON POISONOUS TO BEES.—A. J. M., Berlin Heights, Ohio, writes:—"Two or three years ago I had some Rhododendrons which came out before the red clover, and would you think it, it was something new for Ohio humble bees. They came and eat holes in the buds, and not finding the honey they continued to eat the flowers, and got so stupid or poisoned they could not fly for some time. I never noticed this in the East, where the Kalmia and wild Rhododendron are common. I have them both growing here, as well as the cultivated varieties."

[There is, we think, no evidence that is entirely satisfactory that the honey of the Rhododendron is poisonous; though it is repeated over and over again by book-makers. The story arose from the accounts of ancient Roman writers, as to the poisonous character of the flowers. But what they called Rhododendron in their day, is the Oleander of ours, and that is poisonous, and very much so. In North Carolina last year, the writer came on an extensive bee keeper, in the midst of hundreds of acres of Rhododendron maximum, who said that next to the flowers of the Linden tree, that from the Rhododendron was the best. Why bees sometimes die after flower visits it is hard to tell. Some years ago the writer saw hundreds of bees dead under a large Chinese Wistaria, and felt justified in concluding that the Wistaria was fatal to bees; but since then he has seen bees by the hundreds collecting honey from Wistaria flowers, without knowing of any deaths.—Ed. G. M.]

NATURAL HISTORY AND SCIENCE.

COMMUNICATIONS.

NOTES AND QUERIES—No. 23.

BY JACQUES.

Dear Notes and Queries—

That was an interesting account of the plant that cuts off the heads of its victims. It is yet to be discovered, I suppose, whether the plant feeds on the dislodged head. We shall hear more.

And now I want you to tell us if Amber has ever been found in America, and what it is. I brought from the Mediterranean a specimen with imbedded insects, but somebody kindly informs me it was made for sale. Truly,

MARIA.

Amber has not been extensively found in the New World any more than tin. Yes; they do cheat travelers now and again. Amber is known to be the resinous exudation from several species of extinct coniferous trees, called *Pinus succinifer*. Over 800 species of insects have been found preserved in Amber; and leaves or other fragments of 163 species of plants. It is used for ornaments, and fine specimens are worth more than their weight in gold. The largest mass is in the Cabinet at Berlin; its weight is eighteen pounds, and it is valued at $30,000. Amber when rubbed becomes highly electric. It was long an article of commerce. In the Green Vaults, the royal muséum of Saxony, is a book-case entirely inlaid with amber. The writer has seen fine specimens brought up in fishermen's nets on the south coast of England, but it is most generally found on the Baltic shores. So valuable an article is sure to be counterfeited.

Prevention of Floods is the title of an able article in *Macmillan* for February. The attention of the editor of *The Garden* is respectfully called to its statement that drainage exercises no little influence on the destructive floods which so frequently damage the crops in England. There can be no doubt that while the land has been successfully underdrained, for the purposes of floods it has been overdrained.

Sugar culture is becoming an industry in California. It is proposed to plant the cane in New Jersey, at Vineland. Delaware, too, is hungering.

Lumber is cut down in Michigan to an astounding extent. The lumber products this season will be about 775,000,000 feet, an excess of 50,000,000 over 1879. It is said that Washington Territory will yet yield 500,000,000,000 feet of lumber.

In a discussion at a meeting of the Massachusetts Horticultural Society, Mr. Wood said:—"The discussion and practice of fruit culture afford much pleasure and profit. All would agree with Downing that fine fruit is the flower of commodities; it is the most perfect union of the useful and the beautiful that the earth knows. Trees full of soft foliage, blossoms fresh with spring beauty, and for all fruit, rich, bloom dusted, melting and luscious—such are the treasures of the orchard and garden temptingly offered to every landholder in this bright and temperate climate."

New culture for pot plants is the theme of an article in *Scribner*. A layer or mulch of moss or sphagnum is placed on the surface of the earth, and ground bone-dust, one part to thirty of the moss, all mixed together, is packed in the pots, and spread over the soil. *Scribner* probably exchanges with the GARDENERS' MONTHLY, in which Mr. Henderson spoke of it.

What becomes of our cereals? Since the harvest time of 1879, while Ireland and Eastern Brazil were struggling with famine, and thousands of our fellow-men in other countries actually died for want of bread, about 400,000,000 tons of breadstuffs have been converted from a blessing to the curse of our race—drink!

NURSERY AGENTS.

BY NURSERYMAN, ROCHESTER, N. Y.

Perhaps there is no industry so little understood at the present time as that of selling or supplying trees and plants to the public by retail, through the medium of agents, or what are more familiarly known as tree dealers. This species of the *genus homo* is often looked upon with discredit and suspicion, if not actually classed among the frauds and swindlers, who go up and down the land seeking whom they may devour. That this distrust and want of confidence on the part of the public has much foundation in the unscrupulous representations and swindling practices of some who are engaged in this business is freely admitted, and the misfor-

tune is, that they cannot seemingly be reached by the law and punished. It has come, however, to be quite the fashion among our horticultural and agricultural magazines and papers to asperse and condemn all who prosecute this business, and to recommend to their readers to have no dealings with agents, but to send their orders directly to some respectable and responsible nursery firm.

That these denunciations are made through ignorance is apparent to one who understands the workings of the trade, because they are indiscriminate and unqualified, and because they recommend what has not, and probably will not, become the general practice; and furthermore, what is quite as likely to be as unwise as it is unjust. I propose here to briefly show that the business of supplying trees, &c., to the public through agents, is an entirely distinct and separate one from growing and wholesaling, and that the nurseryman, so called, has not the facilities and is not the best prepared to serve the public in this way. At the outset, however, it should be understood that there are two classes of dealers; the one is an itinerant, without capital invested, with no organized business beyond what pertains to his personal canvass. He goes over his territory, takes his orders, and at the proper season betakes himself to some nursery to buy his stock. The proprietor looks over his list of wants and says, I can furnish this, that, and the other, but such and such things I cannot supply. Having no further facilities for filling his bills, and generally but little time to spare, it usually ends in giving the nurseryman instructions to supply what he can true to name, and substitute for the balance, and thus indirectly, the public get the same treatment they would in dealing directly with the nurseryman; for many of these men are honest, and as the writer, an old nurseryman, knows, most exacting and clamorous for the best stock. Now, as distinguished from this class of dealers is another, and between the two, there is about as much difference as between the *pack-peddler* and the responsible and organized commercial house. This latter has experience, capital, system and organized facilities, and prosecutes the business with as much fidelity to detail and honesty of purpose as is found in any class of trade whatever. There are many such firms, but it is not my purpose to make distinction of any one; but having had extensive dealings with them, and not being jealous or envious of their encroachments on my special department, I propose to tell what I know of their methods and system.

If you shall visit one of these firms you will probably find spacious offices, with a large clerical force busily engaged in performing their allotted duties; a hundred, or possibly two hundred men are acting as agents or canvassers for this firm. At the end of each week all orders are required to be sent in, and from these orders a list is made of every item called for, and the number of each, the orders are aggregated, in short, and from this aggregate sheet the items are drawn off, one by one, under proper headings on to what is termed a Stock Book. These stock books are about four feet long when opened, and are divided by different headings, such as Standard Apples, Standard Pears, Cherries, Peaches, Raspberries, Currants, Grapes, Evergreens, Ornamental Trees, Ornamental Shrubs, Roses, &c., &c. The pages are ruled vertically, and at the head of each column is the name of varieties arranged alphabetically; as for instance, under the head of Standard Apples will come Alexander, Autumn Strawberry, Baldwin, and so on. Each week then, as the totals of each variety sold are obtained from the orders, they are entered under the appropriate headings, so that at any time, and at a glance it may be seen just what is sold. From this Stock Book the purchases are made. It may be early or it may be later in the season, but at any time it is known what is wanted, and a thorough knowledge of where stock is grown, whether it is scarce or plenty, enables the firm always to secure their supply in time.

There is little or no temptation to substitute or use inferior stock. If the desired varieties and quantity are not found in one place they can be in another, and thus, by this system of keeping track of every item on every order, and a thorough knowledge of the wholesale market, and the whole season in which to obtain supplies, ninety-nine one-hundreths of the orders can be filled with precisely the varieties called for and of precisely the quality stipulated.

Of the vast detail and great amount of work necessary in "working up" these orders preparatory to packing, it is not necessary here to speak at length. Suffice it to say that it is so arranged that all small plants and everything of a tender nature are kept separate, so that when the time for packing comes all these things are carefully mossed, strawed and protected against all injury from transportation. The firm hav-

ing their own packing yard, receive stock from the different nurseries where they have purchased, carefully sort it, and if anything is found inferior or not up to contract it is rejected and replaced by that which is right. Now the business of raising a general nursery stock is entirely different from this, and occupies all the time and thought of the nurseryman. He has no time for all the details and minutiæ of a retail business; besides, in a business representing many thousands of dollars in these orders, no one nurseryman, or dozen nurserymen in this country could begin to furnish all the items called for. The nurseryman having grown his stock feels naturally that, in justice to himself, he must dispose of what has already cost him time and money rather than make outside purchases, and so he often fails to supply entirely, or takes the liberty of substituting. Some of these firms of dealers of which I have been speaking, not being able to satisfy the public demands in this country, import largely of choice and rare things from Europe, and thus anticipate the nurseryman who relies upon his own productions, and must take time to get up a stock. I think, Messrs. Editors, from what I have written it is clearly demonstrated that it is not the nurseryman alone that is worthy of patronage, nor is the dealer entitled only to condemnation; both are good in their spheres and worthy of popular favor. There are unworthy men among each as in every branch of business, but I believe in the main they are doing a good work, doing it conscientiously and should be sustained.

[In addition to the above, we have a "private" from which we take the following: "Having seen the article in your February number, entitled 'Frauds,' and your comments thereon, and my attention having repeatedly been attracted to articles of this kind in other magazines and papers, and believing, as I do, that they are misleading and unjust, I have prepared an article, which, if you deem worthy, I should very much like to have published in your next issue as a reply."

A man who brings us a letter from some one we know, or has other things to show he really is the person he represents himself to be, is not a stranger any more. No one has ever objected to buying from authenticated agents. Every department of trade has its accredited travelers, and by them trade is pushed into quarters where trade would never be heard of. But this is a wholly different subject, and does not prevent us from repeating that any one who trusts money, or any valuable thing into the hands of a total stranger, unless he is able to see just what he is getting for his money, is an idiot; and if any person of this class gives a fellow two dollars for a dozen scarlet tuberose roots, on the bare assertion that he is "agent for the celebrated Achelis Nurseries," he has just the sympathy we give to idiots and nothing more.—Ed. G. M.]

EDITORIAL NOTES.

The New York Horticultural Society.—This revivified body is growing on with a bound, over $100 was offered as premiums at the March meeting. Twenty new members, chiefly among the wealthy people of taste of that city, were added to the rolls. A crimson Bengal rose, called Queen's Scarlet, similar in color, but much fuller than Agrippina, was exhibited. Mr. Henderson gave an essay on winter forcing of the rose. He only practices moss mulching from April to November. It is bad at other times. Mr. John Henderson said good roses could not be had without "good draining." There were many fine things exhibited, but unfortunately, with the exception of the rose, no comparisons are given which would render their merits intelligible to the distant reader.

Mr. Parker Earle.—This eminent pomologist has taken charge of the horticultural department of the *Farmer and Fruit Grower*, of Northern Illinois. His many friends all over the Union will wish the paper every success, if it were only on Mr. Earle's account.

Alexander Pontey.—Among the deaths of the past month, we are sorry to record that of Mr. Alex. Pontey, of Pontey & Taylor, one of the most enterprising nursery firms of Ontario. He died on the 25th of February at Westminster.

The Justifying Value of a Public Park.—By Frederick Law Olmsted. This is a paper read by Mr. Olmsted at the meeting of the American Social Science Association at Saratoga in 1880. Mr. Olmsted proposes for discussion in this paper the question whether the contemplation of beauty in natural scenery—the object so often sought for in park arrangement—is practically of much value in counteracting the evils by which, to so many in large cities, life is rendered hardly worth the living; and whether it is possible, at reasonable cost to

make such beauty available to the daily use of great numbers of towns-people?

BARN PLANS AND OUT BUILDINGS.—Published by Orange, Judd & Co., New York. We often hear residents of other States comment admiringlp on Pennsylvania barns, and many would like to know how to build them. The frontispiece of this useful work represents a barn in Connecticut, but as it is "for all the world" like some of these celebrated Pennsylvania barns, it will do to go by. Like many of these cheap books of Orange, Judd & Co. already known, it will be very useful to a numerous class.

THE FOOD OF BIRDS.—By A. E. Forbes, reprinted from the Bulletin of the Laboratory of Natural History of Illinois.

Many who read the discussions in newspapers must often wonder why people will write an opinion which takes an hour, rather than spend five minutes in looking up the facts in the case. "Are birds any use to the fruit grower?" is one of these questions. The man who has seen the robin eat a pestiferous grub and no more, is sure the robin ought to be preserved; on the other hand, he who knows the robin will eat cherries, knows no more, but is sure the robin is a profound rascal, for whom gunpowder and shot are much too good. Mr. Forbes deserves the thanks of all the lazy bones by the careful investigations here published. People can see here just what the birds do—the good they do and the bad they do—and form a just balance as to their value. In the case of the robin, Mr. Forbes found that in February ninety-five per cent. of the food of the robin was insect food, of which ten per cent. were of insects supposed to be beneficial. Of the larvæ of the bibio, which, by the way Mr. Forbes shows to be an injurious insect, were consumed to the amount of 1,500 per month on the average to each bird. In March, a large per cent. of cut-worms formed the food. In April, beetles in large numbers are eaten, a few sumach berries forming the only vegetable food. In May, seventeen per cent. of its food was of the terribly destructive May beetle, the larvæ of which, as the white "grub," florists are too well acquainted with. A single robin had eaten a single potato beetle. It is well known that birds take to different insects gradually till they get preferences which become habits. It is a pity this bold robin came to an acquaintance with Mr. Forbes' gun, though in the cause of science, as it may have spoiled a race of potato beetle eaters, but it is to be hoped other robins will pursue the same line of investigations. With June, the robin changes his carnivorous habits. While ninety-five per cent. of his food has been of insects before, it is now reduced to forty-two, the balance he takes in tithes from the cherry and raspberry crop. Still he keeps up the war on bad insects, four per cent. of wire worms, among other potions insects being part of his daily food. In July he came up to seventy-nine per cent. of fruit food, and in August forty-four per cent. of his whole food were cherries. In September fifty two per cent. were grapes, mostly wild kinds of the woods, as indeed we suppose were many of the fruits already noted. We have given only a few small items. Mr. Forbes goes into every thing with a strict detail, that is worthy of a judge of the supreme court. All we have done is to illustrate his manner of going to work. As to the robin, Mr. Forbes concludes the balance is largely in favor of the robin. He says, "I do not believe that the horticulturist can sell his small fruits anywhere in the ordinary markets of the world at so high a price as to the robin, provided that he uses proper diligence that the little hucksters do not overreach him in the bargain." And these are our sentiments. Mr. Forbes goes over the facts in the same way with other birds; but our space will not permit us to refer more particularly to them. We can only say that the paper is not only a valuable contribution to ornithological science, but our gardeners should be especially thankful for the paper is evidently a voluntary contribution to science, and must have taken an immense amount of time to work out in detail, Mr. Forbes is the more entitled to proper gratitude.

DAIRY FARMING.—By J. P. Sheldon. New York: Cassel, Petter, Galpin & Co. Part 19 of this beautiful work will be of special interest to its American subscribers by an exhaustive chapter on "American Dairy Products."

THE FRUIT GROWER.—Published quarterly at Rochester, N. Y. Charles A. Green, Editor. The first number before us gives promise of usefulness. Certainly it is seldom that so much good material is given at so low a subscription price.

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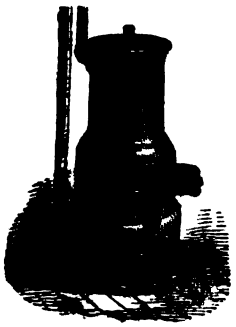

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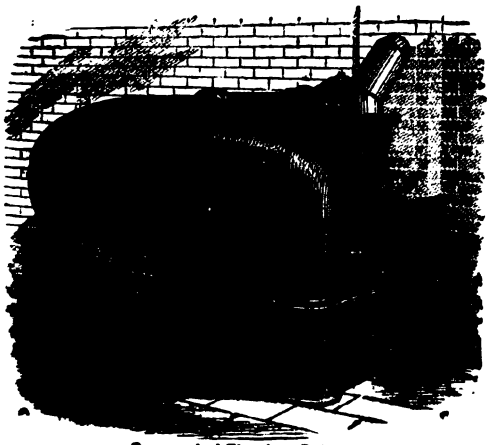

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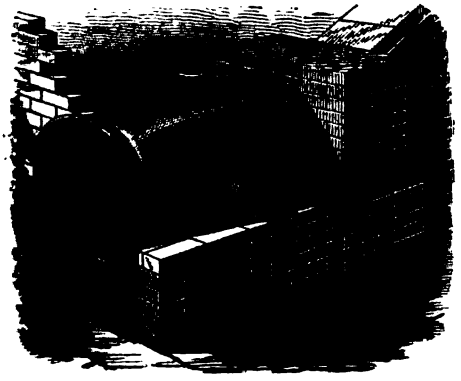

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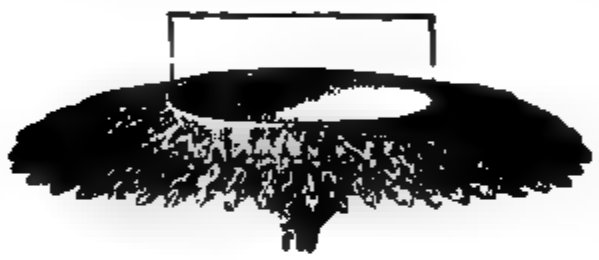

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After several years careful hybridization I have succeeded in raising the following magnificent Carnations, and after disposing of all the blooms I could grow to the Boston Florists for the past three years, I now take the pleasure of offering them to the public.

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Color, a beautiful delicate Pink, same shade as H. P. Rose Baroness Rothschild; flowers large, finely fringed, clove-scented; dwarf habit, and very prolific. This is without doubt the finest and most prolific Carnation in cultivation and the only one of its color. Was awarded first-class Certificate of Merit by the Massachusetts Horticultural Society, Sept. 9, 1879. Certificate of Merit by New York Horticultural Society, June 16, 1880, and Prospective Premium of Forty Dollars as the best Seedling Flowering Plant after three years trial by the Massachusetts Horticultural Society, January 1, 1881.

PRINCESS LOUISE.

Color, Rose Pink; flowers, extra large, well formed, beautifully fringed and strong clove-scented; growth vigorous, healthy and very prolific. Awarded First-class Certificate of Merit by Massachusetts Horticultural Society, October 11, 1879; Certificate of Merit by the New York Horticultural Society, June 16, 1880.

FRED JOHNSON.

Color, light Scarlet; flowers, extra large, well formed and very fragrant; free grower and very prolific. Awarded First-class Certificate of Merit by Massachusetts Horticultural Society, October 11, 1879. Certificate of Merit by New York Horticultural Society, June 16, 1880.

TESTIMONIALS.

The following are a few of the testimonials I have received.

DORCHESTER, MASS., March 3, 1881.

MR. TAILBY:—It affords me pleasure to bear testimony to the excellence of your New Seedling Carnations. The Grace Wilder, bearing the name of one of my daughters, was a favorite with me from the first, so lovely in color, perfect in form, and withal so fragrant, it well deserves the Forty Dollars Prize bestowed on it by the Massachusetts Horticultural Society. I like the Princess Louise, its deep rose color, fringed petal, clove-fragrance and vigorous growth, well gives it a place among the best varieties. The Fred Johnson, also, seems to promise well but I have not so much knowledge of it as of the other two kinds. You have been very successful, and when you are prepared to send out these varieties, I desire you to put down my name for some of each. Yours, as ever,

MARSHALL P. WILDER.

BOSTON, February 19, 1881.

MR. JOSEPH TAILBY, Wellesley:—*Sir:* I consider your Seedling Carnation, Grace Wilder, a great acquisition as a flowering plant, possessing, as it does (as I have stated before), all the elements of a popular plant, viz.: *Perpetual* and *prolific* bloom, a *peculiarly delicate* and *delicious fragrance*. Having seen the plants growing in a wonderful state of productiveness in your houses, and knowing that the demands of the floral market of Boston have taxed their full capacity for two years past, I have no hesitation in recommending it to purchasers, and congratulate you upon your remarkable success in the production of Seedling Carnations.

Yours, very truly,

WM. H. SPOONER.

Chairman of the Flower Committee of the Massachusetts Horticultural Society.

ALBANY, N. Y., June 25, 1880.

JOSEPH TAILBY, Esq.: *Dear Sir:*—Last spring, when I visited you, I was much pleased with the vigorous stocky growth of your Seedling Carnations—the great number of buds and flowers on each plant, the very bright colors and strong clove odor. Your display of Carnations at the Exhibition of the New York Horticultural Society last week was very fine, and the size of the flowers at this season of the year verifies your remarks that they were perpetual bloomers. If you conclude to let out the stock notify me of the fact, as they are an undoubted acquisition to the Carnation world. Yours truly,

WM. GREY.

Gardener to Erastus Corning, Esq., Albany, N. Y.

WELLESLEY, February 24, 1881.

MR. JOSEPH TAILBY:—*Dear Sir:* The following Seedling Pinks, viz.: Grace Wilder, Princess Louise and Fred Johnson, raised by you and having been before the public for three years past; are so well known that I think it almost unnecessary to say a word as regards their merit; suffice it to say, however, for delicacy of color, vigor of constitution and floriferous properties, they certainly stand unequalled for the million.

Respectfully yours,

F. L. HARRIS.

Gardener to H. H. Hunnewell, Esq., Wellesley, Mass.

ASTORIA, L. I., January 10, 1881.

JOSEPH TAILBY, Esq.: *Dear Sir:*—I was much pleased with your Seedling Carnations at the Exhibition of the New York Horticultural Society last June, they were very fragrant and of a beautiful delicate color. When I visited Wellesley, in September last, I saw at your place a house full of them, which, for vigor and productiveness surpassed anything I ever saw before.

Yours truly,

WM. C. WILSON.

Florist, &c., Astoria, L. I., N. Y.

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PRINCESS LOUISE,	" .50.	" 5.00.	" 40.00.
FRED JOHNSON,	" .50.	" 5.00.	" 40.00.

TERMS CASH or satisfactory Reference.

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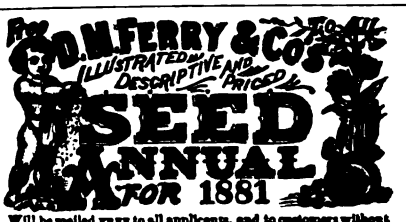

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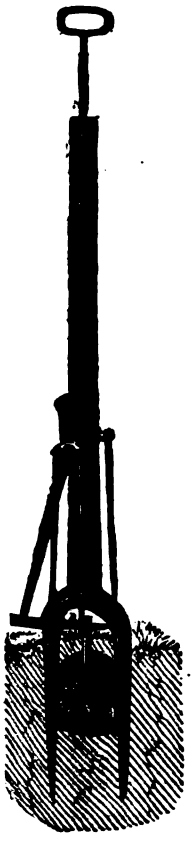

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Nothing but a small wooden pin is visible in the track, which the mole is sure to run against, the slightest touch springing the trap, which never fails to catch and kill the mole.

During the past year we have distributed them extensively in the neighborhood of New York, and from every point we have nothing but expressions of satisfaction at the admirable manner in which they operate. We have yet to learn of an instance where it has failed.

The sterling character of the houses from which the following testimonials have been received places the superiority of the Isbell Mole Trap beyond all question of a doubt.

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"DEAR SIRS: After using several kinds of English mole traps without success, we procured the Isbell Mole Trap and have used it for the past two years with perfect success, and can recommend it as the surest, simplest and most efficient we have ever seen.

"Yours, ROBERT VEITCH & SON."

"QUEENS, N. Y., Dec. 23d, 1880.

"DEAR SIRS: We have six of your Isbell Mole Traps; shall get more if moles are as plentiful another year. They saved hundreds of dollars' worth of lilies for us the past year. Should not know how to get along without them. We have caught over fifty moles, mostly with two traps, as we purchased the last four late in the season. We have caught as high as four in one day.

"Yours truly, V. H. HALLOCK, SON & THORPE."

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"Respectfully yours, WOOLSON & CO."

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"Yours, G. H. WATERBURY & SONS, (FLORISTS.)

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This is the finest of all whites, far surpassing anything ever sent out for size of *flower*, purity of *color*, *sweetness* of perfume, *vigorous* growth and *freedom* of bloom. Appended is report of New York Horticultural Society at the meeting March 1st 1881:

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AWARDED A CERTIFICATE OF MERIT.

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LILIUM AURATUM.

Fine large, SOUND Bulbs, Per 100, $20.00.

Splendid New Seedling Geraniums.

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DEVOTED TO HORTICULTURE, ARBORICULTURE AND RURAL AFFAIRS.

Edited by THOMAS MEEHAN.

Vol. XXIII. MAY, 1881. Number 269

FLOWER GARDEN AND PLEASURE GROUND.

SEASONABLE HINTS.

We take up our pen on this 1st day of April to offer a few "Seasonable Hints." They are for our magazine, which is to appear on the first of May. It seems hard to tell just now what will be "seasonable" at that time. Only think of the thermometer on the side of the office showing 11° below the freezing point. Then there are letters on the table from all points of the compass about "snow on the ground," and "frost," and "cold winds." How long is this to last! But spring will probably soon come; for here is a rose plant from the open ground in New Orleans with leaves and shoots several inches long! It will be as well, then, to write for May,—it will no doubt all come along right in good time.

Speaking of New Orleans, suggests the absence of good lawns in Southern gardening. It is probably from following too closely the kinds of grass popular in more northern climes. In the writer's occasional trips to the South he has noted many kinds of wild grasses that would probably make good lawns. Those should be selected for trial that creep and are evergreen. Near the Spanish Fort, below New Orleans, some years ago, he noted an orchard of orange trees that had the surface covered with Bermuda grass, which has a strong creeping character. It formed a dense mass of about four inches deep at that season (February). It is possible this would not stand the close clipping of a lawn-mower, but it seemed very probable that it would. Has any one tried it? If not, there are others. Even in the North we have not in every case got the best lawn grass. Just here about Philadelphia we need nothing better than Poa pratensis—the Kentucky blue-grass; but then Pennsylvania is not all the United States. Some of our colleges which love to experiment might try patches of various kinds as lawn grasses.

From May to June will be the great bedding-plant month. The colored-leaved plants still play their useful parts. Of Coleus, up to this season the old Verschaffeltii and Queen Victoria retain their popularity with gardeners. It remains to be seen whether some of the newer ones will rule over them or not.

In planting out flowers don't take them at once from the hot-house to the open ground. Set the pots out for a few days in a cold frame with plenty of air, or under a tree in a sheltered place. Before turning them out of pots, water; and when set in the earth, press the soil very hard about the flower roots. If the ground be dry, the earth cannot be pressed too hard.

Deciduous trees can be safely transplanted after the leaves have pushed, and up to the first of June; but the new leaves must be taken off, and the young shoots shortened. In a few weeks they will push out a new crop of leaves. According to "natural laws" as laid down in

the books, it would injure the trees very much; but after a many years' observation of the facts, we do not find it hurts the vitality of the trees very much, while few ever die so treated. Evergreens seem to do better in May than in any other spring month. Of evergreens, still rare, Thujopsis borealis, Cupressus Lawsoniana, Libocedrus decurrens and Golden Retinispora, are really good additions to our list.

Trellisses and stakes for climbing plants and vines should be put in at or before setting out the plants. These plants always seem to grow with more freedom and vigor when they can find something at once to cling to. Climbing vines add greatly to the interest of a garden. They can be trained into all sorts of forms and shapes; and many of them, for gracefulness of form or beauty of their flowers, cannot be excelled by any other tribe of plants.

COMMUNICATIONS.

ROSES FOR BEDDING.

BY C. NEUNER, LOUISVILLE, KY.

In the February number of GARDENER'S MONTHLY, Mr. H. B. Ellwanger gives a list of the best twenty-four monthly roses for bedding. No doubt for the Northern and Eastern States the list could not be improved on; but for the Middle and Southern States the varieties grown are, according to my experience, not the best ones. I was hoping an abler pen than mine would make some suggestions for the March number already, therefore this delayed reply.

It is a well-known fact that scores of splendid bedding and decorative plants or fruits, or even vegetables which do well all summer east and north from here, cannot stand our hot and dry atmosphere, and the same trouble exists with some roses. For example, the famous La France cannot be recommended as a bedding rose here, because it is a poor grower, drops its leaves, and only in the fall brings its flowers to perfection. Jean Pernet and others given are poor growers here also.

I concur fully with Mr. Ellwanger about the requisite qualities, and will mention below the names of twelve varieties which, according to my opinion, have all the qualities a really good bedding rose must possess. The other twelve varieties named by Mr. H. B. Ellwanger can be put with fifty or more varieties which will do very well here and further South, the true land of and for roses:

Souvenir de la Malmaison.—Very perfect; fine, clear, fresh color, edges blush, a splendid bloomer.

Glorie de Dijon.—Undoubtedly, next to Mareschal Niel, the finest rose in existence; large creamy yellow, a good bedder.

Sombreuil.—The freest bloomer, most vigorous grower, and showiest of all bedding roses; creamy white.

Comtesse de Labarthe.—Bright rose, cup-shaped, freest bloomer, very sweet.

Madame Caroline Kuster.—Bright lemon yellow, orange shaded, free grower and splendid bloomer.

Musk Cluster.—Pure white, blooms in enormous clusters; very effective.

Madame Rivoy.—Beautiful, rich crimson scarlet; large, fine form, very double and sweet, very showy.

Souvenir d'un Amie.—Delicate rose, shaded slightly salmon, very large double.

Marie Van Houtte.—Light yellow, edged pink, producing a very pleasing effect.

Charles Rovolli.—Beautiful, pure rose-colored buds, freely produced; this rose deserves a place in every garden.

Madame Lombard.—A splendid, large, finely imbricated rose, of a bright rose, changing to a reddish salmon.

Madame Welche.—Beautiful amber yellow, deepening to orange yellow in centre; extra fine.

Allow me to say a few words more about discarding roses as worthless, with which object I heartily concur if carried out right, but solemnly protest if practiced too lightly, or for mere bravado. For example, one of my neighboring rose-growers undertakes to say Innocenta Pirola is a seedling of Niphetos, lacking many of the good qualities of its parent, and has developed no others with us to make it worthy of being grown. My experience so far is about the reverse of the above, but I will give here the opinion of the most experienced rose-grower in this country, namely, Mr. Ant. Winzer, foreman for twelve years past to Messrs. Dingee & Conard's Rose Company. He says Innocenta Pirola is one of the best roses we have; its habit of growth is far superior to Niphetos, and I had bloom on it as fine as ever I saw, &c.

Again, my neighbor undertakes to strike out our old, hardy garden tea rose, Cels. Whoever saw this rose once in perfection and knows its hardiness and other good qualities, will not discard it from his list. Even Messrs. Ellwanger & Barry, who sounded the keynote in this laudable work, are going too far in some instances, according to my opinion at least, and I would like to hear others express their opinion on this subject. I would also like to hear some particulars about

the tea rose American Banner, of which reports are too conflicting to form any adequate idea of its value. I for my part would not undertake to put it down as utterly worthless, as some parties do.

BEDDING PLANTS.

BY N. F. F.

I observe in the March number of the MONTHLY the request of A. L. O. E. These initials are so intimately associated with the name of that noble lady, Miss Tucker, that it is difficult to think of them as a *nom de plume*, except in connection with the name of a lady.

Replies to questions thus put are likely not to cover the whole ground. In the first place, one can hardly guess with absolute certainty just how much horticultural skill the querist possesses, nor have we any means of knowing the predisposing causes to failure. The answers must, therefore, of necessity, be of a general character.

Why six scarlet geraniums for bedding purposes? We use only two except in a small way on trial. As a scarlet bedder, the geranium called General Grant, has not yet been beaten. Please remember, however, the writer is in the immediate vicinity of Baltimore. We use for scarlet geranium, General Grant and a seedling which we do not think sufficiently distinct from the former to need a name. If we used another it would be Coleshill, and for a double scarlet Sapier pompier. For white, Emily Vaucher; for pink, Christine and Christine Neilson; for a silver-leaved one, Mountain of Snow. Marshal McMahon is a good type of the bronze section. Now as to Centaurea. The habit it has of dying out in places along the lines is well nigh universal, and not only amateurs but skilled gardeners also, would be glad to discover a remedy. Nature has thus far been fairly kind to us, perhaps in return for the love we bear her, but remembering her reputation for fickleness one feels dubious of saying much.

In the matter of propagation, C. gymnocarpa is not difficult, but requires patience, unless one could winter over old plants, cut well in early in January, bring them into heat, and when the young growth is a little more than an inch long take it off with a small heel of the old wood. Insert these cuttings in the propagating bench, and they will root and grow readily. Remembering, however, that this is for amateurs, who, like ourselves in that particular, have no room to spare; we take our cuttings along in the autumn, nearly up till frost, put them in sand, in a cool place, and keep them there till February, when we pot them and induce them to grow a little, planting out latter end of April. Under this treatment a great many of the cuttings are merely callused when potted off. It will be thus seen there is nothing difficult nor scientific in the treatment of Centaurea gynnocarpa. Should more light be needed, the MONTHLY is ever ready to supply it. Pyrethrum gets pretty much the same treatment as Centaurea.

BEDDING GERANIUMS.

BY CHARLES E. PARNELL, QUEENS, L. I.

In the GARDENER'S MONTHLY for March, 1881, A. L. O. E. inquires for information concerning bedding geraniums, and asks for the names of the best six scarlet geraniums, the best pink and the best white.

For bedding and massing purposes there is none that can compare with that grand old standard sort, General Grant. After repeated trials I find none to equal it. It is indeed a superb bedding variety, with very large trusses of bright scarlet flowers, which are produced in the greatest profusion during the entire season. It is of robust and healthy growth, and is extensively grown for bedding purposes, as it stands our hot, dry summer weather without injury. For a good second variety I recommend Queen of the West. It is of robust growth, stands hot, dry weather remarkably well, and the bright orange scarlet colored flowers are produced in immense trusses, in great profusion, during the entire season.

Mrs. Whitley also proves to be an excellent variety for bedding purposes, the flowers being produced in good sized trusses, and in color of a fine orange scarlet, with a clear, white eye. The habit of the plant is excellent, and the flowers are produced in profusion during the summer months. So far I have only seen this variety advertised by the Greenbrook and Paterson nurseries, of whom I obtained it in the spring of 1879.

Jean Sisley is of dwarf habit, producing large clusters of flowers of the richest scarlet color, with a very distinct, large, white eye. This variety is not so robust in growth as those previously mentioned, and sometimes suffers during hot, dry weather, but with a little care and attention

will prove to be a most excellent sort. Care should be taken to set out only strong and healthy plants of this variety.

Victor Hugo (single). This is another excellent variety, producing immense trusses of brick red flowers during the entire season. It is of robust growth, and deserves a place in every collection.

Triumph is one of our old varieties, and is one of our best bedding, double-flowering geraniums. The plant is of robust habit, flowers profusely during the season. In color the flowers are of a brilliant scarlet, and they are produced in immense trusses.

Archbishop Wood is one of the best of the double-flowering varieties. It is of dwarf habit, and the brilliant crimson scarlet flowers, are produced in fair sized trusses, in great profusion. For pot culture this variety is without an equal.

Master Christine is the finest pink variety in cultivation. It is of dwarf habit, forms large trusses of flowers of deep pink, with a distinct white eye. It stands hot, dry weather remarkably well, and continues to flower in great profusion during the spring and summer months.

Madame Lemoine is of compact habit, and is a very free bloomer. It is an excellent bedding variety, as it throws up large trusses of bright, double, rosy pink blossoms, well above the foliage.

White Clipper is the best single white. It stands the sun well, and the trusses are of fair size, and are also very freely produced.

Madame Amelie Baltet is the best double white variety, the flowers being well formed and full, and the trusses are of large size. The flowers of both single and double white varieties are apt to turn pinkish when fully exposed to the hot sun.

Ordinary garden treatment will answer very well for the robust-growing varieties, but for those of dwarf growth I advise that the ground be dug to the depth of two feet at least, and a good portion of well-rotted manure incorporated with the soil.

MORE PLANTS AND FLOWERS FOR CITY PEOPLE.

BY JOHN THORPE, QUEENS, N. Y.

The example set by Philadelphia, Chicago, Boston and Allegheny, deserves to be followed by many other cities, notably New York and Brooklyn.

The bearing fruit testifies how much of an educator is the planting of trees and flowers in public places. It has been my pleasure to note and study its influence upon the masses, and wherever plants and flowers are used as common property there is a cheerfulness in the people, a something to elevate and instruct. The mechanic, after the toil of the day, the children after school hours, are always happier and better prepared for another day's work; and let it be recorded there is neither disturbing or pilfering of plants in public places, and this without any previous opportunity for many of the people to even see flowers.

During last summer, at Allegheny City Park, during a Sunday afternoon and evening, I saw thousands upon thousands of happy faces taking in all the beauties of their park. No roystering or vulgarity, no violations of the simple rules there in force, but all in common look upon the place as their individual property.

I must say a few words about Allegheny Park, and Mr. W. Hamilton, its very able superintendent. In the whole of the Union there is not a more difficult place to obtain satisfactory results, being more or less much affected by the smoke of Pittsburgh and its vicinity, yet here were splendid green lawns, and the floral effect scarcely equalled in the most favorable situations.

I was informed the entire number of plants used was in the neighborhood of 30,000. There were magnificent beds of cannas nine feet in height; immense plants and clumps of Caladium esculentum; grand beds of geraniums and coleus, a pyramid of coleus, thirteen feet high, consisting of eleven bands, about twelve inches broad, with point of Arborvitæ globosa; a broad base of Achyranthus, and other plants, the entire width of base being thirty-eight feet.

Some remarkably fine carpet beds and a menagerie panel, the length forty-eight feet, and breadth fourteen feet. The animals being one elephant and one camel, worked out in a most life-like representation, the centre being occupied by a richly-executed Maltese cross.

With regard to carpet and pattern bedding, it has some detractors, and may be quite justifiable, but I have no doubt there is much good result from it. The children, above all others, are benefited, and among the thousands of children in Pittsburgh and Allegheny there are but very few that do not remember the elephant and camel in the park, and this will be a life-long impression with many. I maintain that what

pleases the masses is what must be aimed at in public places. We have not here long spring months to enjoy spring flowers and the generality of hardy blooming plants. Again, carpet-bedding is said to be conventional, and not natural. What are wall papers, what are curtains, and what are carpets proper, but conventional. At Allegheny there are not only bedding plants, but quite a fine collection of deciduous shrubs in bold masses and singly. The best of shade trees and trees of smaller growth is somewhat limited on account of the smoke difficulty; but here are good limes, maples, poplars, several varieties; some elms, and the best of all is the ailanthus.

The greenhouses contain a fine collection of plants, considering the limited accommodation. These also are open to the people at all times, most of the plants being labeled correctly with scientific and popular names, country and uses.

So I would say to boards and corporations in cities, give the people their garden, let them have something to cheer a toilsome life, and depend upon it, no outlay of money will ever pay so much interest as the park fund.

CARDEN SCIONS.

BY CANTAB, BOSTON, MASS.

VI.

Leucophytum Brownii is a little, slender, silvery composite, now much used as a "white" in mosaic flower gardening. Some gardeners are ecstatic over its merits, but surely I fail to find them. It always seems to me a miserable, ragged, starved-looking plant. At times it fails to grow, and it often damps off in patches. Mr. Harvey, gardener to Henry P. Kidder, Esq., tells me it was a failure with him last year, the birds picked it to pieces for nest-building purposes.

The Drouth of 1880.—According to a record of the rain-fall since 1840, kept at Harvard College Observatory, the spring of 1880 is the driest recorded, the rain-fall during the months of April, May and June being but 4.31 inches! The driest spring preceding that was in 1844, when for the corresponding three months 5.19 inches fell; 10.95 inches have been the average rain-fall for the same three months during the past forty years. No wonder, then, our gardens suffered so extremely because of the drouth during the past spring and summer.

Spades.—Light, thin-bladed spades are more to be desired than heavy ones, the workmen like them better, and can do more work with them. I use Ames' spades, and formerly had those marked "O. Ames & Sons," as they are made of the best material, and guaranteed. But lately I got "Blair's Patent," also an Ames' spade. It is lighter and thinner bladed than the "O. Ames & Sons." The workmen prefer it, do more and better work with it, and it is easier for them. The Blair's spades are fifteen cents cheaper than the others, but I would willingly pay more for them than I would for the heavier ones. It may be argued they will not last as long. That may be; but their lightness and keenness more than make amends for their quick wear. I wish manufacturers would use the very best material for spades, and make them thinner than they do now.

LETTER FROM THE BLACK FOREST IN GERMANY.

BY W. D.

(Concluded from page 102.)

Deutzia gracilis is a most excellent small shrub for winter forcing. Early in November plant it in an eight-inch pot, and plunge the pot down to the brim in the garden, where it should remain until the beginning of January; from thence it should be taken up to the cellar for a few weeks, and then removed to a room where the temperature is between 55° and 65° Fah. By the end of February the little shrub will be covered with its charming white flowers. In the same way the Syringa chinensis and the Spiræa Billardii may be treated. Helleborus niger is also a good winter bloomer; its large, white flowers are very effective.

For Room Culture.—There is a plant, which as it does not mind the dust of the room or the constant change of the temperature, ought to be more widely known than it is. I mean the old Clivia (Imantophyllum miniatum). It wants by a temperature of from 50° to 60° F., good, rich soil, a twelve-inch pot, and will gladden you with its orange-colored flowers early in December or January.

The Pandanus Veitchii, a splendid palm, with long, white and green-striped leaves, highly ornamental, is of easy culture, and wants a peaty soil, mixed with a little sharp sand, and will do well in a room where the temperature is from 60° to 70° F.

Latania borbonica.—One of the finest palms, which, when planted in peaty soil, will do well in a room where the temperature is not below 65°. During its growth this beautiful palm re-

quires to be watered twice or three times a week with rain water of a temperature of not less than 50° F. The plant requires daily syringing, and the leaves must be kept free from dust.

Hyacinthus candicans.— Introduced by the Messrs. Kreelage & Son, of Haarlem, is not what it i reported to be. The white flowers, produced on a stem three to four feet high, are shaped like the flowers of single hyacinths, but are minus the fine scent of these. I think the H. candicans will not be a valuable acquisition to the garden.

Clematises have made wonderful progress. The large blue ones make a good effect, especially Jackmanii, Prince of Wales, Otto Froebel nigricans, but the finest of all is the Emperatrice Eugenie, the largest white, four to five inches in diameter. This splendid white clematis is a free bloomer until frost sets in, and is quite hardy.

Chrysanthemums. — Perennial fall flowering have of late been greatly improved, and ought to be found in every garden. I will mention a few which are yet in bloom late in November: Soeur Melanie, snow white, small, but beautiful; Gaillardia, gold orange; Mirabelle, dark red; Uranus rosa; Madame Chevreil, violet with white; General Pourcet, carmine red. All these are pompon sorts.

Rhododendrons.—An oval bed of thirty or more of bright colored Rhododendrons, edged with the white flowering Spiræ Japonicas, make a very fine effect; so a large bed of fifty to one hundred Acer negundo foliis variegatis, nicely trimmed, about three to five feet high, and edged with the Spiræa japonicas, is very beautiful.

Anemone Japonica (perennial.)—Planted single or in masses, makes with its fine white flowers a good effect.

EDITORIAL NOTES.

PHILADELPHIA CITY SQUARES.—After a little while the citizen will be writing to his favorite paper about the dirt and filth of the city squares, and no doubt the City Commissioner will have all sorts of advice about employing better men, squandering city money, and so forth. It should be borne in mind by these excellent citizens that the City Councils appropriated only $2,000 to keep in order ten of these little parks for one year. The Commissioner has little chance to squander much money.

FAIRMOUNT PARK.—The New York *Tribune* of March 14 has an appreciative and well deserved account of Fairmount Park, Philadelphia. In regard to the grand conservatory it says:— "Within the very precincts of this great and busy city, where few are the dreams of Arcadia, there is to be found a scene of tropical loveliness probably unmatched in this country, and quite like a young forest in its luxuriance. It is well worth the short journey required to reach the spot, and if once there, so many beautiful attractions are to be found that no visitor, be he a botanist, with a heart and a conscience, or be he merely an intelligent lover of trees and plants under cultivation, will think of bestowing a few hasty glances, and of taking his departure without regret. The Commissioners of Fairmount Park, Philadelphia, have gathered in Horticultural Hall a collection of rare exotic plants, which in point of numbers and variety of kinds represented, together with the great size and health of the plants, is indeed remarkable, and probably not equaled even in Europe."

HORTICULTURAL LABELS.—An exhaustive chapter read before the Congress of Botany and Horticulture, in 1880, by Mr. Charles Joly, has been issued in Paris. He goes over all the known methods of labeling plants, and seems to regard writing on zinc as about the best.

ROSE CULTURE.—At the March meeting of the New York Horticultural Society, the subject of winter-blooming roses was freely discussed. The conversation turned chiefly on the shading of roses. Opinions were divided as to the necessity; Mr. Taplin believing that where the rose house was ventilated regularly, as it ought to be, shading was not at all necessary.

GARDENS OF THE MEXICAN ABORIGINES.—The *Contributor* of Salt Lake City, referring to the City of Mexico, says:—"Beyond the limits of the city proper, on the plain intervening between it and the higher mountains, is the nearest approach to a forest of anything in the valley of Mexico. Here were located the once famous 'floating gardens' of the Aztec capital. They still flourish among the trees, are very productive, but no longer 'float,' owing to the retirement, years since, of the lake upon which they formerly moved. Flowers in great variety are grown in these gardens, in rich profusion, and when tastefully arranged by Indian men, women and children, find a ready sale at the floral market of the city. But the price realized is very insignificant. At the time of the conquest the people of Mexico were notably in advance of

those of civilized Europe in the cultivation of flowers; and the Indians, notwithstanding all the sorrows and afflictions through which they have since passed, still maintain, in this particular, their love for the beautiful.

"The canal into which flows the Rio Tezcuco passes through these gardens, and is the means by which their produce is conveyed to the market of the city. Beyond is the Paseo de la Vega, near which was fought, August 20, 1847, the battles of Contreras and Cherubusco. Thus the reader has followed us entirely around, while we have briefly sketched a few of the many interesting places remaining attractive in the historic valley of Mexico, which was the cradle and the grave of millions who lived and died ages before the bright volcanic flames ceased to glare upon its mountains and plains."

MARYLAND GARDENS.—Mr. Feast continues his interesting sketches in the *Maryland Farmer*. Mr. A. S. Abell, of the Baltimore *Sun*, has a pretty place at Guilford. The grounds are large, well kept, and well arranged from a landscape gardening point of view. There are graperies and greenhouses. Azaleas, eight and ten feet in diameter, are among the choice plants. Of our excellent contributor on orchid management, Mr. Feast says:

"Captain Snow, one of our most enthusiastic amateur florists, resides not far from Bel-Air, in Harford county. He has several houses devoted to a good collection of plants. His love for horticulture, combined with practice and theory, enables him to understand the treatment of most plants. If proficiency is the aim, one must read and labor before he is capable of being a judge of the true merits of plants, and know how they should best be cultivated. The captain is such an one. His collection of orchids is very superior; some of them he imported, but most of them he collected during his many visits to the tropics, where he saw them growing in their native climes. Many of them are splendid specimens. Having become familiar with their habits in their homes, he has no difficulty in rearing them and keeping them in fine health and condition. His grounds about the house are occupied with trees, evergreens and flower beds, which present a pretty appearance. He has a fancy for herbaceous plants, of which there are found some choice specimens. There is a fine orchard of pears and other superior fruits. Pears do well in this section. Mr. Snow has everything done under his own direction, and seems to take great pleasure in attending assiduously to his own business."

Mr. John Merryman, the famous farmer, is also a lover of gardening. Mrs. Merryman is not only a lover of flowers, but manages the greenhouse herself.

Governor Carroll's place is famous for fine specimens of hardy trees, its bedding plants, and its old style garden, a fine greenhouse, with choice and well grown plants, including many rare orchids.

Henry Hazlehurst has a country seat, with a magnificent view; greenhouses, with fine collections. Mrs. H. is a devoted lover of flowers, and takes a personal interest in the gardening arrangements.

CATTLE IN PUBLIC STREETS.—It is well known that cattle are sometimes allowed to run at large on country roads, to the annoyance of farmers and rural gardeners. But it will surprise many that the same outrage is permitted in such a city as Dayton, Ohio. We should hardly believe that the town council of such a famous city would tolerate such brutishness, did we not find it in black and white among the records of the Horticultural Society:—"The city of Dayton, Ohio, and its neighborhood is blessed with one of the most vigorous and useful horticultural societies in the Union, at the same time that the city suffers the intolerable annoyance of cattle and swine moving freely through all its handsome streets. A striking instance is here presented of refinement and vandalism together, in a large city claiming taste and intelligence."

NEW AND RARE PLANTS.

RHEUM PALMATUM.—Rhubarb has served many useful purposes. When the old folks were younger it served with their mothers what the soothing syrups and other popularities do for us. As "pie plant," we all know how valuable it is to every one; except those who in Philadelphia some years ago got a few months in prison for "selling as something new, under the name of 'wine-plants,' what they knew were old things called rhubarb plants;" and even to these it may have been valuable as a lesson, which, however, scamps are slow to learn.

Now we are to have a rhubarb on our lawns

as an ornamental plant,—a very pretty species having been introduced to cultivators by Haage & Schmidt, of Erfurt. It is not a new plant to botanists, being well known even in the time of Linnæus as Rheum palmatum. But it is only recently that it has been induced to leave its East Indian hills to minister to the pleasures of gardening. Our illustration gives the general effect of the plant in flower. The individual flower will bear examining for curious structure, as the enlarged drawing shows. After the fruit is over, the brown winged fruit, given also of the natural size in our figure, keeps the plant attractive till the fall. Of course the leaves will lie down in winter.

RHEUM PALMATUM.

Double White Lilac.—Double Lilacs are not uncommon in our best collections, but double white has not been known. Lemoine, of Nancy, France, has raised one very double, and of a clear, snow white.

Diseased Clematis.—F. G.—We do not know what disease you refer to. They have three troubles. Sometimes a borer goes for them; then an insect like the Phylloxera often attacks the roots; and in the case of C. Jackmanii, they often go off in one night, as with the fire blight in the pear. But we know no remedy for any of them.

GREENHOUSE AND HOUSE GARDENING.

COMMUNICATIONS.

SHADING GREENHOUSES.

BY L. B. CASE, RICHMOND, IND.

In regard to shading greenhouses, I found it paid better to mix up a lot of clay with a little indigo or bluing to the consistency of thin paste and wash the glass, than to use lime white-wash, but ordinary lath shades if nailed on pretty thick answered better than anything else. Of course this would not answer for an orchid house, but for all ordinary purposes it is No. 1. I might say with lath shading they should be placed so as to have the rays of the sun continually, changing as the sun travels to the west. A little sunlight is certainly beneficial to nearly all plants, and if the house is well ventilated no great or oppressive heat need be retained in the house. The mud paste will require renewing after each heavy rain, but in fall it will wash off without much trouble, and very little injury to the putty.

SHADING GREENHOUSES IN SUMMER.

BY MRS. M. PLUMSTEAD, LYNN, MASS.

"R. L. B. of Des Moines, Iowa," wishes to know the best method of shading the glass of the greenhouse in summer. Peter Henderson (I do not know a better authority) says, "The best shading we have used is naphtha mixed with white lead, so as to give it the appearance of thin milk. This can be put on with a syringe very quickly, at a cost not exceeding twenty-five cents per 1000 square feet. It holds on the entire

season until loosened by fall frosts, which is for most plants just the time required to be taken off"

Last fall when taking up plants I noticed some chance seedlings of Eupatorium angustifolium, in a pot containing a Century plant. I put them in the greenhouse in a solid bed with other plants, nipped the tops to keep them bushy. They grew rapidly and came into flower the same week with others that had been kept in pots all summer, plunged in the ground, repotted twice and put in the greenhouse at the same time. The question arises in my mind, why not save five months time, trouble of watering and potting, instead of planting seeds in September with the same result. Does anybody do this way?

MEALY BUG.

BY D. W. COX, CRAWFORDSVILLE, IND.

In reply to the question asked by Mrs. J. D. S., Upper Sandusky, as to the best means of getting rid of mealy bug, I see many remedies offered by different parties. We use alcohol applied with an atomizer and find it always efficient. It is easily and quickly applied, and does no injury to the plants; at least we have never noticed any harm come of its use on plants. Do not recommend its internal use to florists.

HOW TO MANAGE A SMALL HOTHOUSE.

BY CHARLES DUDLEY WARDE.

II.

Some of the difficulties of my subject can be imagined when one considers that hundreds of books and innumerable magazine articles have been written on hothouse management; and also the fact that out of the hundred or more varieties of plants one wants to cultivate, hardly two require the same treatment. It is a fact, that the temperature necessary to grow violets successfully, is so cold as to kill many varieties of coleus. But by judicious arrangement according to their different wants, nearly the whole catalogue, except orchids and a few others can be grown in the same house. Laying aside details, I will try and give briefly the essential points, so that a person of limited experience can easily supply the omissions.

The point of first importance is that of heat. It is hard to prescribe any arbitrary degree at which the thermometer should be kept, for this varies according to the season, and the kinds of plants it is desired to cultivate. My experience has been, that beginners are quite sure to keep a house too warm, on account of a desire to be on the safe side, and lessen the danger of freezing, as well as force the plants into bloom. This is a mistake, and tends to destroy their vitality, and greatly weaken them. For general purposes I think that 55° at the coldest point is about right for the night, and days when the sun does not shine. But when the sun is on the glass, it can safely be allowed to go as high as 90°, without serious danger. The main object should be to maintain an even temperature, and avoid all sudden changes.

No definite rules can be established for watering; one must simply use careful judgment. If the soil be dry, as can easily be ascertained by the looks or by feeling of the earth, water freely. Not merely sprinkle the top, but see that the whole is thoroughly saturated. Water if possible in the morning, and occasionally sprinkle the foliage. At all events do not water unless a plant needs it, and to have a plant get a little dry once in a while is better than to have it continually wet.

Ventilation is also very essential, and quite apt to be neglected, unless its full importance is realized. Pure air is as necessary to plant life as human life, and without a judicious use of the ventilator, one cannot hope for success in winter gardening. Admit fresh air during the middle of the day, more or less, according to the severity of the weather. Never open the ventilators during a damp or dark day. Avoid having a draught strike directly on the plants. If a green slime or fungus comes on the tops and sides of the pots, reduce the amount of water, and increase the ventilation. Re-pot the plants so affected, if this does not remove it.

An entire number could well be devoted to the subject of the proper soil, so much of success depends on this point, and so many theories are held by different authorites. Four principal elements are requisite to make the proper mixtures for the different purposes. Good garden loam, manure at least two years old, coarse well-washed sand, leaf mould from old growth hard wood. These in different proportions can be adapted to the wants of any plant; for instance, for newly rooted cuttings use loam mould and sand, in nearly equal parts; for ferns more leaf mould and less of the others; for repotting old or established plants, use more manure, and so on through catalogue. These points of

difference can be ascertained from any good work on horticulture.

In potting see that the plant stands upright, and press the soil firmly down. A gentle rap on the side of the pot will smooth off the top. Newly potted plants should be watered with a sprinkler, as a heavy stream will dig up the roots. With nearly all large plants and geraniums and fuchsias in particular, put some pieces of broken pot for drainage. Never shift plants into larger pots until the roots have reached the sides and bottom of the one they are in. Overpotting is a frequent mistake.

To me the most fascinating part of horticulture is in propagating, and the cutting bed of a hothouse is the first thing I examine. It should be in the shadiest and warmest place. In the plan described in a previous article, it should be just over the boiler, which is on the north side of the walk. The main points for a successful cutting bed are a good heat, and a uniform moisture must be maintained, never allowing it to get dry. Have had a single neglect on this point ruin an entire bed. The cuttings should be placed in coarse white sand, free from iron or other impurities. Wash thoroughly and pound it down firmly before inserting the cuttings. In most cases select wood that is partly matured avoiding weak or soft shoots, for they are sure to "damp off;" cut off squarely just below the bottom joint with a sharp knife, making one smooth cut; remove the lower leaves, and in some plants as coleus and pinks, crop the foliage, but preserve the centre shoot; press the sand firmly around them, and shade from the sun.

Space will not permit more extended directions, but in closing would like to give the result of last year's experiment with my hothouse, the same as described last month.

Cost of running: two tons coal, $8.00 per ton, $16.00; other fuel, $5.00; leaf mould and sand, $2.00; seven hundred new pots various sizes, $11.00; glass and other repairs, $1.50; making in all $35.50.

Now I sold to various neighbors and other hothouses after filling my own garden, which took at least 1,000 plants, enough to amount to $128.50, leaving a handsome margin above expenses for the purchase of new varieties, and some return for the trouble. Having attempted to show the general points of management, in my next will enumerate the best varieties to cultivate and show how to make the most of a little room.

COAL OR GAS TAR ON PIPES.

BY PETER HENDERSON.

I notice that Theodore Lawrence, of Ogdensburg, N. Y., says that he has succeeded in removing coal tar from hot-water pipes by swabing them with hot lye. I apprehend that in that case either the surface of the pipes must have been unusually smooth—as in wrought iron—or else the "painting" must have been done with the tar when cold; for if applied while hot (as is usually the case) it permeates the grain of the iron, almost through it, and in such instances hot lime, lye and a dozen other things, which I know to have been tried in the case of James Park, Brooklyn, L. I., failed to remedy the mischief, and nothing was left to do but to take down the pipes and burn it out.

EULALIAS.

BY MR. C. E. PARNELL, QUEENS, L. I., N. Y.

In reply to B., who inquires for information concerning the Eulalias on page 70 of the GARDENER'S MONTHLY for March, I would say that both Eulalia japonica and E. J. zebrina, are perfectly hardy in this latitude with a slight protection of evergreen branches put on about the end of November and taken off about the end of March.

Hydrangea, Thomas Hogg, is rather tender here, it dies to the ground even in mild winters, and in consequence no flowers are produced. It should be taken up, placed in a cool, dry cellar for the winter, and planted out again about the 10th of April or later, according to the weather. It is what we might call a half hardy plant.

MOSS MULCHING.

BY PETER HENDERSON.

Your correspondent, H. L. P., asks me why in his practice of "moss mulching" a fungus appears about the roots. We have now practiced moss mulching most extensively for over a year, and in no single instance have we seen any fungus on the roots of the plants that could be ascribed to moss mulching, and I am inclined to believe that it must be the result of some other cause. It is true that a few days after the mulching of moss and bone, is put on, probably for a week, a mould or fungus appears on the surface of the "mulch," but this is in no way injurious. When I wrote the article on moss mulching, which I sent to you last season, we had not then passed

through the round of the year's experience, and we now find that its use promiscuously on plants is only safe from, say, March to October. We use it even in midwinter on gross feeding plants such as Callas, Dracænas, Palms and plants of that character. But we found that plants that were in a partially dormant state and are grown at a low temperature, such as Azaleas and Camellias are better without it. I think in the summer months, on Azaleas particularly, is most beneficial and marked. At the date we write (April 4) nearly every plant in our establishment, as soon as it is established in anything over a three inch pot, is submitted to the moss mulching process which we will continue throughout the entire season. So satisfactory were the results last year, I send you by this mail a specimen of a fuchsia and a rose on which is a layer of about half an inch of the "moss mulch," in which you will see how the roots are feeding, the mulch having been on about thirty days.

COOL ORCHIDS—EPIDENDRUMS.

BY W.

In a former article upon Stanhopeas (December, page 364) I referred to the above as the easiest of culture of all orchids. They also are most numerous, if we except the Oncidiums and possibly the Dendrobiums, there being from three to four hundred known species and varieties, and the number unknown is also great, judging by the new members constantly being added to this large and varied family of epiphites. Although they are all, I believe without an exception, natives of the continents of North and South America, chiefly the latter. They are found from the latitude of Florida on the north, to 25° south, or the vicinity of Santos, Brazil; and from the level of the sea at the mouth of the Orinoco to an altitude of 14,000 feet. They differ much in habit; and while some species have pseudo bulbs from one inch to several in height, others are entirely destitute of these curious appendages, and throw up long slender stems, clothed with leaves like a climbing vine, to the height of ten feet or more. All, with one exception of which I am aware, E. Stamfordianum, produce their flowers from the top of the stem or bulb. These vary more than in any other genus from green to scarlet, including white, rose, purple, orange and yellow. Often very insignificant, though the fragrance of those least showy is occasionally sufficient to perfume the whole house.

They are very much like members of the Cactus family, difficult to kill when once well established and will stand any amount of rough treatment, and even cold, to a moderate extent, without injury. Although many of the species are not worth cultivating by the amateur except for their fragrance, there are about thirty that are good and amply repay the little attention they require.

Before speaking of the several species and varieties that have come under my notice, I will allude to the uncertainty of distinguishing them by the foliage and general appearance. These are often very deceptive, and with few exceptions, they cannot be positively identified until they flower; particularly is that the case with some of the best varieties. As before said many species have small flowers, but occasionally a fine bloomer is found, four or five inches in diameter, worthy a Cattleya or Lælia. In several importations of the past season, I find plants of slightly different bulbs and appearance, evidently not of the species sent, though mistaken for that when collected, and I am awaiting the development of their flower spikes with much curiosity, especially those that came with a shipment of E. macrochilum (Atropurpureum) which contains several plants quite different from the type, in the hope that some of them may prove to be the beautiful variety Roseum, and also in a lot of plants sent with E. nemorale majus.

Of their culture it is scarcely necessary to speak. Wired to a block of oak, cedar or maple with sphagnum moss, or potted in this moss with good drainage, they do well in almost any position, or any degree of heat, and with few exceptions grow like weeds. Of these I may mention E. bicornutum, one of the handsomest species with which I could do nothing until wired to a block without moss, and E aromaticum which refused to grow until similarly treated, though it scarcely differs in appearance from E. dichronum, which requires pot-culture. Of course that essential of all orchid growth, an abundant supply of moisture, is necessary at stated times as occasion may require.

There are but two species indigenous to the United States, found in the State of Florida, E. conopseum, without pseudo bulbs, the stem five to eight inches in height, surmounted by two to five coriaceous leaves, ending in a terminal

spike of three to ten graceful pale green or yellow flowers, with slight fragrance, not remarkable for beauty, though rather curious. Its matted roots thickly cover the branches of trees, especially of the Magnolia grandiflora in Florida, and the States bordering the Gulf of Mexico. The other, E. venosum, differs in being provided with two short pseudo bulbs and two long narrow veined leaves five to eight inches in length. These two species will serve to illustrate the two great sections into which the genus is divided, viz.: those having pseudo bulbs, and those without; three or four of the former, however, more nearly resemble Cattleya; in fact E. aurantiacum being often mistaken and sold for the beautiful Cattleya Skinnerii.

To enumerate a few of the best which have come under my observation, I will first mention E. aloifolium (aloe leaved), called also Parkinsonianum and falcatum, and in Mexico, Brassavola Pescatorea, or Holy Spirit flower. Natives of Guatemala, must be grown suspended from a block, leaves downward, like Cattleya citrina, or in a basket with moss, so that leaves can hang down over the edge. The flowers are four or five inches across, yellow and brown, with pure white lip, like a delicate butterfly with expanded wings, with the powerful fragrance of the Night-blooming Cereus, filling the house at morning and night, and lasting in bloom four to six weeks. Truly a most dainty and beautiful gem, and appropriately named.

E. cochleatum (spoon orchis), a continuous bloomer, not pretty but curious; in the shape of the deep velvety purple; lip in an upright position, so unusual. (Figured in Harper's Monthly Magazine, 1880.)

E. oncidioides, a Mexican species with tall branching spikes of small light green or yellowish flowers, lightly hung on slender filaments, exquisitely graceful. It takes its specific name from the resemblance of its inflorescence to that of the Oncidium, or possibly from similar structure of the flower.

E. dichromum, a lovely species from Bahia, is a profuse bloomer. Its large panicles of flowers of great substance vary from white to deep pink or purple; and in one variety the sepals are beautifully veined with radiating lines of deep purple.

And lastly we have the brilliant scarlet or orange-scarlet, E. vitellinum, of which the variety majus is truly superb, blossoming sometimes in winter and sometimes in summer, lasting from six to eight weeks in good condition. A grand and brilliant flower.

These will all do well in the ordinary temperature of a greenhouse, where geraniums, fuchsias and such plants are kept, and are splendid plants for the amateur or beginner to test his skill upon, for they will not suffer materially from neglect, as would the more delicate orchids.

The list can easily be enlarged by including the beautiful E. nemoralis majus, E. microchilum (larger lip), called also atropurpureum, from Mexico and Venezuela; E. Frederici Guilielmi, E. myrianthum and E. prismatocarpum, all of which being from great altitudes, will thrive in cool-house culture.

In the early days of orchid classification the name of this genus, more properly written "Epidendron," meaning a plant growing "upon a tree," was applied to all epiphites, or plants growing upon other plants, not properly assignable to any other genus. Jacquin so applied it to some one of the twelve species he describes. (Plates 131–142 ed. 1763.)

So susceptible are the above to cool treatment that we find eleven specimens of Epidendrons included in the list of orchids grown out of doors in Bohemia in the year 1852, referred to in a former article.

HEAT FROM ABOVE.

BY HERBERT HARRIS, HALIFAX, NOVA SCOTIA.

All our heat comes from above. This fact patent to all has led me to view the present arrangement of hot water pipes (in part) in greenhouse, stove and pit as against nature's laws and not supported by scientific nor practical knowledge. I have had a long and continued acquaintance with the working of horticultural structures, in the extremes of summer heat and winter cold, and personal experience in their internal working and heating, often attended with serious physical disorganization caused by exposure to the cold draughts from the roof occasioned by the excessive cold outside acting upon the atmosphere inside even when the thermometer indicated a medium temperature. Among many troubles is the difficulty of commanding the same temperature at the end of the house farthest from the boiler, as that which exists near the boiler. Then there is the renewal of the evils arising from an accumulation of dry hot air underneath the stages or table on which the plants stand (just where the heat should not be) caus-

ing excessive dryness at the bottom of the pot, (so opposite to the working of nature's laws.) All these have led me to think, plan and philosophize shall I say! no; rather to put in practice the great Master-gardener's own, all-wise, perfected arrangements, manifested and shown in the heat of the glorious sun which warms and causeth the earth to bring forth and bud, that it may give seed to the sower and bread to the eater. I say then that the above experiences and reflections have induced me to partially change the general arrangement of the heating appliance in our glass houses. My boilers are situated at one end of my houses. Now I carry the flow pipe perpendicularly, as direct as is possible from the boiler until it is within, say 18 inches of the apex of the roof. I then divide the stream called the flow, continuing them to the other end of the house (gradually allowing them to fall a few inches in the whole length), then continuing the flows to the sides of the house, I connect them with the pipes underneath the side stages and so return to the boiler. It will at once be seen by those conversant with hot water apparatus, that the more rapid the circulation from and to the boiler, the more perfect becomes the arrangement and service of the system. Now the effect of this is that one commands a complete equable temperature in all parts of the house. Your columns, Mr. Editor, have often been laden with queries and statements of the difficulties and disappointments arising from the fact that the heat of the house, (I refer to houses 100 feet or more long) at the end farthest from the boiler, cannot be maintained at the same temperature as that at the end near the boiler. Of course I do not take into consideration the economy of utilizing heat to be derived from a flue or smoke pipe proceeding from the boiler through any part of the house. My own experience is, that flues and smoke pipes have always been attended with great trouble, risk, and are unreliable. Now the advantages I claim by following nature's own laws in this respect and application of the same are briefly summed up thus:

1. More rapid and perfect circulation from and to the boiler. 2. Full command of the upper strata of air, and consequently the whole temperature of the house. 3. A perfect equable temperature throughout the entire length and breadth of the house. 4. The prevention of an accumulation of dry, hot, unhealthy air underneath the stages or tables on which the plants stand. 5. Consequent upon this last the fact that plants will not suffer from drought at the bottom of the pot when from the appearance of the surface of the soil they are moist.

Now Mr. Editor, eighteen months ago I altered the piping in one of my houses (100 feet long by 22 feet wide) by carrying the flow pipes above, and the results were so satisfactory that during last autumn I rearranged one other of my houses (100 by 18) and shall embrace the first opportunity to alter all my houses to this arrangement.

In this community my procedure has been severely criticised by men who profess to know; men who are reported to be well versed in scientific knowledge; but doctors differ, and err so frequently that we often learn from the merest novice, much that is more sensible. To cite one instance of the ignorance which prevails even among scientists:

Not long ago, just subsequent to the alteration of the second house, a scientific friend on visiting my nursery denounced in toto the arrangement and stated emphatically that I was going against all scientific knowledge and practice. Just a week after this denunciation another scientist visited the nursery, admired the arrangement, spoke of it as based on true scientific principles, and stated that I was carrying out an idea that would revolutionize our present system of heating.

I hope my horticultural friends will not persuade themselves that I am advocating that which I do not believe in, but rather that which I have acted upon, and will act upon more extensively in the future.

A FINE GARDEN AND GOOD GARDENER.

BY MANSFIELD MILTON.

How often do we come across gardeners possessing the best of practical knowledge, at the same time diffident about conveying their knowledge to others through the press. Not but what they are willing to tell all they know about growing this or that plant, but lack that confidence in themselves to put on paper for the benefit of others. Some of the very best methods of plant culture are hidden from this cause. I met the other day with one of this kind in the person of Mr. Murchie, Gardener for Mr. Boyd, Sharon, Pa. Some time before in the MONTHLY, I spoke of him as a successful plantsman, and my last visit to the greenhouses which he has

charge of convinces me that he can accomplish with the greatest success what I have always advocated as possible to be done,—the growing with success orchids and what are termed the higher grade of plants in a general collection of greenhouse plants.

In this collection I saw a plant of the new double Poinsettia which was *par excellence*. Grown as it is here it is one of the finest recent additions to our stock of greenhouse plants. The orchids appear to bloom with the greatest profusion; three plants of Cœlogyne flaccida, were superb, two in baskets and one in a pot. The pot plant had eleven spikes averaging eleven flowers to the spike. I question the name of this orchid being correct. The specimens in baskets are small but flowering just as fine as those in pots, and look remarkably fine, the long racemes of flowers, hanging over the edges of the rustic baskets.

Phajus grandifolius was in perfection, two spikes being produced from a bulb, and as many as twenty-two flowers on a spike. How often we see this plant in greenhouses, and how seldom we see it in perfection. When well grown it is a grand old plant.

Mr. Murchie has a seedling Phajus in flower for the first time, one spike having five flowers; the white is purer than the parent, and the brown on the lip darker. The spike is produced on the second bulb formed, being only two years from the seed, showing when properly handled how soon they can be brought into flower even from the seed.

Dendrobium nobile; this grand old orchid is here on blocks in baskets and in pots, all of them flowering profusely. Mr. M., however, tells me he finds most orchids succeed best in pots, and intends placing in pots most of those he now has on blocks. A large plant of Cattleya Warscewiczii with twenty flowers on it, truly a grand plant. This orchid appearing as it does in many different varieties, should be more grown than it is. The flowers are something after the style of Mossiæ, but I think a finer flower and lasting a long time in perfection.

D. densiflorum was not in flower, but judging from the number of buds on the shoots it will be worth seeing when in flower. This is a somewhat difficult Dendobe to flower successfully, but it appears here as easily managed as any of the others. A splendid plant of Lælia anceps, Cœlogyne cristata, Oncidiums, Cattelyas, and hosts of others are here all in the best of health. Of the other plants, Begonias held a prominence, all the best of the flowering kinds being collected. Digswelliensis, Mr. M. thinks the best for winter flowering, and as grown here is fine Callas, bouvardias, passion flowers, Eucharis, Adiantums. Two plants of A. Farleyense measured four feet across, fine specimens. All the fine and new coleus sent out last season showed their fine colorings, being on shelves close to the glass. This house was just one blaze of flowers comprising of the plants mentioned, with many others requiring similar treatment; it is kept at a temperature not less than 55° nights. In another house kept at 50° were such plants as geraniums and carnations; among them I noticed as extra fine, Snowdon in habit dwarf and large flowers. Heliotrope covered with flowers. Cyclamen, a splendid strain, fuchsias. Eupatoriums, conspicuous being stricta, and a large plant of the old Eranthemum pulchellum in flower; also Pleroma elegans with its dark blue flowers.

I sincerely hope that Mr. Murchie will favor the readers of the MONTHLY with the culture as adopted by him of some of these plants he is so successful with, as I am certain such details would be of great benefit to all of us. Let him leave all diffidence to one side, and rest assured such practical articles will be received by the Editor with pleaure.

FRANCISCEA.

BY CHARLES E. PARNELL, GARDENER TO W. D. F. MANICE, QUEENS, L. I., N. Y.

The broad leaved Franciscea (Franciscea latifolia) is a South American evergreen shrub, belonging to the natural order Serophulariaceæ. It is a native of Brazil and is said to be found growing in great abundance and luxuriance at a place called Tejuce not far from Rio Janeiro, where it forms a dwarfish branched evergreen shrub growing about six or ten feet high, with alternate entire elliptic leaves, shining above and from three to five inches in length. As it is a plant of easy culture, and to be found only in a few collections, I desire to call the attention of the readers of the MONTHLY to this beautiful plant. It possesses the useful quality of blooming at a period when flowers are scarce, and flowering plants of little beauty are highly prized. Its period of flowering is about the first of December, but this period may be considerably extended by having several plants and keeping some of them in a dormant state, by a

little attention as to temperature. I prefer to have it flower early in December, as flowers are at that time not only scarce, but very desirable. The flowers of this Franciscea are produced in loose cymes in the greatest profusion, and exhale a fragrance that is agreeable to most persons, and in size measuring from two to two and one-half inches in diameter. Their color is of a dark blue when first developed, but after the second day they gradually and slowly become really colorless or of a delicate white, thus presenting on the plant a diversity of colors varying from dark blue to pure white; the flowers, however, retain their fragrance to the last, and continue to be produced in profusion for a considerable length of time.

The culture of this plant is very simple. It requires and must have good drainage and a compost made of one half well rotted sods from an old pasture, and the other half, sand and half mould, or well rotted stable manure in about equal parts. While growing during the winter season it requires a shaded part of the house, a moist atmosphere, an average temperature of 55°, and if it can be given, bottom heat. It can be set out in the open air, in a position fully exposed to the sun, about the middle of May, and removed to the house about the middle of September. During the summer season enough water should be given to supply its wants, but after it is taken inside, water should be given very sparingly until it commences to grow, when the plant should be occasionally sprinkled overhead, and water should be freely given. If grown in a pot, the pot should be plunged when the plant is set outside for summer, and on no account allow the plant to become pot-bound.

Our plant is about five feet high, and four feet in circumference, and is now (December 7th) in full bloom.

Cuttings prepared from the partially ripened wood are said to root with tolerable facility in heat under glass. Our plant also ripens seeds freely from which young plants could no doubt be readily obtained with a little care.

EDITORIAL NOTES.

Hot Water Boilers.—A novelty is offered in Carmody's sectional extension water heater. This novel point is thus described: "It is adjustable, being in sections; its power can be increased or diminished at will. To illustrate this advantage, we will suppose a florist, with limited means, builds a small house that requires but little heating power. He can get one of these boilers composed of five or six sections, at a small cost; and should he afterwards enlarge his house, he has but to add one, two or three more sections to his boiler, and thus supply the necessary additional heating capacity at but small additional expense. Again, should any one find, on trial, that this boiler is too large, he has but to remove a sufficient number of sections to reduce its heating power." Whether there may be disadvantages with this novelty, may be a question, but it will at least attract attention from those who welcome horticultural improvements.

NEW PLANTS.

Seedling Carnations.—These are so numerous now, that we shall have to insist on very superior points, before we endorse their excellencies. Mr. Kirschner, florist, of Philadelphia, sends us a very large one, and very beautiful. Some say it is better than Firebrand, and Lady Emma, and good judges too,—but we cannot decide this point. All we can say is that it is certainly first-class.

Jasminum gracillimum.—Many new things appear like a flash, and then disappear in the darkness. This one will probably come to stay. It has been just sent out by Messrs. Veitch, and was found by Mr. Burbidge in Northern Borneo. The leaves are about the size and form of the common privet, though they appear by the drawings to be rough and hairy. The bunch of sweet white flowers are about six inches over, and hang from pendulous stalks.

Cypripedium euryandrum.—As so much interest has been shown for orchids recently, we give here an illustration of a curious and beautiful hybrid Cypripedium, raised by the foreman of Messrs. Veitch of Chelsea, near London. Mr. Seden, the gentleman referred to, raised from Cypripedium barbatum, crossed by C. Stonei.

We extract the following from the description by Professor Reichenback, in the *Gardener's Chronicle* for 1875, vol. ii. p. 772:—

"The sepals come near those of C. Stonei, but the upper one is blunter; the petals are ligulate, rather broad, much longer than those of C. barbatum, much shorter than those of C. Stonei; the

lip comes near that of C. barbatum, but is larger. It is an interesting accession, since it touches

Messrs. Veitch say that the plant is of robust growth, with bold deep green faintly tessellated

CYPRIPEDIUM BURYANDRUM.

rather near the giants of Cypripediums, C. Stonei and C. Lowii."

foliage. The flower scapes are stout and hairy, each bearing two or three flowers. The orbicu-

lar upper sepal striped with black and green, and stained with crimson, the long ligulate petals dotted with numerous worts, and the elegant brownish crimson pouch, are marked characteristics of this fine hybrid.

HEINL'S MONTHLY PELARGONIUMS.—Our readers were no doubt pleased with the representations of these improved Pelargoniums as given in Mr. Heinl's colored plate advertisement, which appeared in the March number of our magazine. It is often said of these colored plates that they are pretty as pictures, but how about the plants? Here before us are some real flowers of these Pelargoniums, and we must candidly say that they are superior to the representation as advertised. We have spread the flowers out on paper, and they measure two inches and a quarter across! So well improved as these have been there seems no reason why they may not as entirely displace the "Cape Pelargoniums" as the monthly Carnations have the popular florists' varieties of our forefathers.

DOUBLE IVY LEAVED PELARGONIUMS.—These are being improved rapidly. The *Florist and Pomologist*, one of the most valuable of the illustrated English gardening magazines gives colored plates of three—Gazella, Gloire d' Orleans, and Mons. Dubres. The first was raised by the well-known enthusiastic nurseryman, Mr. Wm. Bull, the second by Lemoine, and the third by a less known French florist, Dubres.

SCRAPS AND QUERIES.

INQUIRIES ABOUT ORCHIDS.—C. T. says:—"Will some of your readers be so good as to give me a few hints on the culture of Brassia caudata and B. Gireondiana? And would C. H. S. please give a few hints as to the treatment of Brassavola glauca?"

CARNATIONS AND BEGONIAS FOR NAME.—Y. G., Highland Falls, N. Y.—It is not possible to name florists flowers from cut blooms. The Carnations appeared to be unnamed seedlings, and perhaps have never been named.

HEATING WATER BY STEAM.—Charles Cruckhell, St. Louis, says:—"A Boston correspondent in the March number enquires if there are any steam boilers in use for heating hot water pipes. There is one in use here, it is tubular, is eight feet long and thirty inches in diameter. It is used for heating a small hothouse, twenty feet long and twelve feet wide, and the dwelling house. It consumes twenty bushels of soft coal a day, requires the services of one man to attend it day and night, and it is absolutely unsafe to leave it at any time in the winter longer than six hours without attention. A city license is necessary to use it. This boiler with the silly arrangement of dwelling house and hothouse combined has sunk money enough in the three years it has been in existence to build and stock a large range of glass."

DWARF WHITE ABUTILON.—J. P., Paterson, N. J., says:—"Please inform me through the MONTHLY if there is a dwarf white Abutilon. I raised one from seed of the old Abutilon, (Boule de Neige) and proves to be a fine variety. I looked into several catalogues but failed to see a dwarf white Abutilon."

[We do not know of any.—Ed. G. M.]

PRITCHARDIA GAUDICHAUDII.—A St. Louis correspondent writes:—"Throw a beam of light on the following, through the pages of the MONTHLY: In one of the houses of the Missouri Botanical Gardens is to be seen a palm named Pritchardia Gaudichaudii. A friend of mine is very desirous of adding this variety to his already large collection of palms (over one hundred), but cannot find it named in the principal American and European catalogues. He has written to several firms, and the answer comes they do not know it. I think it is not named in Loudon. Query, is the above name a misnomer, or, is it also known under some other name?"

[Pritchardia was not known in Loudon's time. Pritchardia filifera is the well-known species from Southern California. We do not know the species referred to by our correspondent, but it has the appearance of a genuine name. Such palm growers as Linden of Brussels, could probably supply it.—Ed. G. M.]

A NEW MIGNONETTE.—A. W., Cumminsville, near Cincinnati, writes:—"We send you by mail a few heads of Mignonettes which we have grown and improved for the last ten years. We think it is the best ever grown as a market variety. If you think it is worthy of mention in the GARDENER'S MOTNHLY we would beg you to put in a few words about it. Our Mignonette is well known around Cincinnati; it has brought double the price of any other variety. We sold plants as high as fifty to seventy-five cents, and could not sell any other variety beside it.

We have to grow the plants for seed under glass, for it will not seed in open ground, or very little. Its habit is very stocky and very free flowering and just as fragrant as any variety. Some of the plants we selected for seed measure two inches in diameter, and the flowers spike by giving them plenty of pot-room endless. We have tried seeds of all the best large flowering offered in market but had none to come up to ours."

[These were certainly heads of remarkable vigor, far superior to any we have seen. The chief value of Mignonette resides in fragrance. If this should be as sweet as it is superior in size, it will be a very valuable addition to our lists of sweet flowers.—Ed. G. M.]

Our Orchid Articles.—The following was not intended for publication, but is on that account the more just a tribute to the excellent correspondents alluded to, and we stretch a point in courtesy which does not permit of publishing private letters without authority,—hoping it will not offend our correspondent, whose name, however, we withhold. Assured that they will be agreeable correspondents we have sent the full address of C. H. S., to him:—

"Your articles and notes on orchids (tropical) are splendid and very instructive. Prof. Falconer is always entertaining but in his article on page 99 he is extra. The article by C. H. S., page 41, is also a splendid paper and one we always enjoy even if we cannot profit by his (?) writings. I hope he will write oftener even if he does not write very much each time. If I had his address I would venture to correspond with him, for I always profit so much by such correspondence, personally. Prof. Falconer writes so often that I almost seem to know him, and I never read any of his notes without learning something, or at least confirming a previously formed opinion."

Fruit and Vegetable Gardening.

SEASONABLE HINTS.

Blackberries and raspberries, set out in spring, may kill themselves by overbearing. It is pardonable to wish for some fruit the first year. If a tree seems to be growing freely, some fruit may be left. Cut out black-knot, or any symptoms of disease that may appear, and as they appear.

Where water can be commanded, there is nothing so profitable as to well soak the soil about small fruits; first about the time that they have set their fruits. Much of the value of this operation, however, will depend on the nature of the soil. The advantages are least in a tenacious, and greatest in porous soil. It is said that an animal derives most benefit from food when it is hungry before it begins to eat; it is certainly so with plants. Water applied to soil already wet is an injury; and water never has so telling an advantage on vegetation as when every leaf is about to wither up for the want of it. A plant that never seems to want water is in a very doubtful condition in regard to its health.

Whether Strawberries should have runners cut off depends much on kind and soil. Free growing kinds grow too freely often in rich soils. Allowing them to exhaust themselves and the soil by growing thick together is an advantage; shyer growing kinds would do no good under such treatment. Moist garden soils are rich—but on the whole the most profitable and best plan is the cutting runners off system. But the best strawberries are raised where the soil between the rows are kept shaded and cool. The plants, that is to say, the leaves and fruits, are all the better for all the sun they can get; but the roots must be kept cool to do well. A good thick mass of corn stalks between rows of strawberries is of first-class service.

Handsome forms are as desirable in fruit as in ornamental trees. No winter pruning will do this exclusively. It may furnish the skeleton—but it is the summer pinching which clothes the bones with beauty. A strong shoot soon draws all its nutriment to itself. Never allow one shoot to grow that wants to be bigger than others Equality must be insisted on. Pinch out always as soon as they appear, such as would push too strongly ahead,—and keep doing so till the new buds seem no stronger than the others. Thus the food gets equally distributed.

If large fruit is wanted thinning assists. Straw-

berries are increased in size by watering in a dry time. Fruit should be allowed to bear only according to their strength. If a transplanted tree grows freely it may bear a few fruits,—but bear in mind growth and great fruitfulness are antagonistic processes.

Few persons deserve more thanks from American gardeners than Peter Henderson. Scores of good points could be mentioned, but his efforts to make known the value of "firming the soil," may be referred to just now. More seeds die from being too loose or too deep than people imagine. Mr. Henderson shows that the shallower seeds can be sown, so that they are damp, and free from the light, the better. Now to make a light scratch, put in the seed, and tread in the soil, is the perfection of this plan. The seed is near the necessary air, just covered so as to be clear of the light, and yet so tightly pressed against the earth that it can easily suck in all the moisture it wants. Of course to a great many good gardeners there is nothing new in treading seed in with the feet. The GARDENER'S MONTHLY has often recommended it in incidental ways, but we will venture to say that there are thousands who have heard of the good plan for the first time, solely through Mr. Henderson's efforts to place the matter before them.

In the cultivation of garden crops, the hoe and rake should be continually at work. Weeds should be taken in hand before they are barely out of the seed-leaf, and one-half the usual labor of vegetable gardening will be avoided. Hoeing or earthing up of most garden crops is of immense advantage in nearly every case. One would suppose that in our hot climate flat culture would be much more beneficial; but a fair trial, say on every other row of a bed of cabbages, will show a great difference in favor of the earthed-up plants. It would be easy to explain the reason of this, but in this column we try to confine ourselves to "hints," and leave reasons to our other departments.

Egg-plant, pepper, tomato, brocoli, cabbage, and a little celery for early crops may be set out —taking care that the plants should not meet any check from want of water, poverty of the soil, loss of leaves or other kind. A check is a great enemy to early crops. "The first shall be last, and the last first," is often very true in gardening, and at times the facts in gardening, in such cases would put many an early famed variety out of an undeserved eminence.

COMMUNICATIONS.

CULTURE OF ASPARAGUS AND THE MOUND PLAN.

BY GEN. W. H. NOBLE, BRIDGEPORT, CONN.

A few years since I repeated in your journal a new way that had been told me of growing asparagus. It was based on the idea that asparagus yearly made new roots from its annual stalk and a new crown; that the roots from those stalks, year by year, fed higher up, needing "fresh fields and pastures new;" that, therefore, if you top dressed the bed with a thick layer of loamy enrichment, you added thereby the wider range and handy storehouse to feed its new tier of growth. The bed would thus, year by year, shape itself into an oval mound. In the trial which I named, I think the plantation, thus swelling to a little hill, was thoroughly salted to keep down weeds, etc.; well dosed with the kitchen slop from a hotel. I should think the trouble with such a bed would be lack of moisture in a dry time. Perhaps the hotel slop remedied that.

An accidental trial of the method, and some study of the plant, led me to think the new way worthy of further test. Some other of your correspondents at the time endorsed the idea as within the range of their observation. The method calls for so little care beyond that annual soil dressing, that it should incite thorough trial by some who have charge of our agricultural colleges and experimental gardens.

Big asparagus is as much a question of manure as of kind. That the garden has not yet proved this method and reported its trial, is not a very heavy fault. Those who garden for profit, and those who cultivate solely for the table, can neither spare time nor space for experiments. Their business is with the dollars or the dish. To them and the future of the plant there are other ways for better crops and larger growths. From the varieties we have, big or small cuttings hang on the question of manure. Asparagus demands rich and heavy food, and plenty of drink. No matter in what way we pile on the manure, it will take all that it can to push its stalks up through. The trouble is, we do not half satiate its craving. It is a perfect glutton of enrichment. We starve the plant, and then talk about our asparagus bed running out. It is our feeding which runs out. It gives us return for all food within reach of its roots. When that is used up, of course it dwindles. Asparagus no

more runs out than an oak or an elm. But then it cannot send its roots on so wide a forage It is severely cropped, often choked with weeds which steal its scanty food; and yet, helped by the rest of a winter, its melting snows, and the spring rains, in spite of our stingy feeding, it does pretty well. Try it, with a big, deep, full covering of well-rotted and fat plant food, and see how its stout, succulent stocks will delight your house and palate.

USES OF THE COW PEA.

BY W. A. M.

Known under the names Crowder (Clay Pea), Red Ripper, Whippoorwill, and many other names. Many of the varieties, and in fact all, are good for table use. The Crowder is so called on account of being so closely filled in the pods, so much so that they are flattened. The Red Ripper is used for making hay, as they make lots of vines.

IS IT THE FRENCH PIPPIN?

BY A. A. B., NEWBURGH, N. Y.

A fine appearing apple, above medium in size, was placed in my hands a few days since by a friend, who said it came to him as the French Pippin. This fruit has been grown in Pennsylvania for at least a quarter of a century, but it is only recently that it has done so well as to attract the attention of propagators and nurserymen. From all that I can learn of it, this apple is worthy of extensive cultivation where it grows well, not for any special qualities as a table fruit, but because the tree bears regular annual crops of good-sized fruit, which keeps well into the warm weather of spring. My specimen was yet crisp, and only fairly ripened the middle of March.

Following is the description of tree and fruit: John C. Lester, in 1871, says the tree is a strong grower, making a large spreading head like R. I. Greening; hardy and very vigorous; and in this, all who have seen and who speak of it agree. Fruit above medium, roundish oblate, a little oblique; stalk rather short; skin clear yellow at full maturity, with a shade of light red in the sun, sprinkled with grey dots; cavity deep, slightly russeted; calyx closed or only partially open; flesh yellowish, inclined to coarse, compact, juicy, with a brisk sub-acid flavor; core small.

In the sections where it is grown, this apple is said to be a most profitable fruit for family use as well as for market.

There is a wide difference in regard to the origin of this apple, Mr. Youngken saying that it was brought from France and first cultivated by H. Luckenback, of Bethlehem, Northampton county, Pa.; while Mr. Lester states that a farmer living in Lehigh county gave grafts to Mr. Luckenback, telling him that they came from Germany. Mr. Grider, who has given a description similar to the above, calls it the Hower or French Pippin.

The origin of the tree is not of very great importance, but cultivators of the fruit will, I think, find that it sustains itself well in any market.

INSECTS ON ORANGES.

BY M. D.

The dark colored remains of the small seed-like insects seen upon the skins of many oranges, according to Professor C. V. Riley, the Government Entomologist, are known vulgarly as the long or mussel-shell scale, and technically as *Mytilaspis Gloverii*, Packard.

"This insect," Professor C. V. R. says, "is in all probability confined to the genus *Citrus*, to which our orange belongs, and has been introduced into Florida from the Old World. It is by far the most dangerous species of scale insects known to infest the orange tree, and when very numerous most seriously affects its growth and health." You will find an account of this species, with illustrations, in a recently published pamphlet on orange insects, by William Ashmead, of Jacksonville, Florida, pp. 1–13.

An unusual condition of things was noticed within a Valencia orange after learning the above facts. The core, which in properly developed fruit is a cord of soft white tissue, had in this instance become very much enlarged, and was composed of a number of folds overlaid by a skin, similar in color and otherwise to that covering the outside of the orange.

The golden color of this enclosed epicarp surprised me more than did its abnormal position. It would seem natural to suppose that the absence of light would have blanched it.

EDITORIAL NOTES.

PEACH YELLOWS IN THE SOUTH.—The following is from the *Farmer's Home Journal*, of Louisville, Ky. After quoting the remarks of the GARDENER'S MONTHLY, the editor says: "We are pretty

well acquainted with the orchards along the 'Jackson route,' and we have never known anything to resemble yellows among the peach orchards so far. The editor must have fine eyesight to be able to detect this disease, rolling along at the rate of twenty-five miles an hour.

"Trees were badly injured two years ago by cold, which caused the leaves to turn yellow, and the trees died out, and very often trees are yellow from an attack of the borer or bad cultivation; but we must be poor horticulturists not to be able to find out by examination what was discovered by a mere glimpse from a car window."

Our friend is a little facetious on such a serious question. We may say in brief, that one who could not tell a peach with the "yellows" from a merely yellow peach tree, even though "rolling along at the rate of twenty-five miles an hour," would be unfit to discuss the subject. For the writer's part, he would guarantee to tell a peach tree with the yellows from a merely yellow peach tree, though the train were going at forty miles an hour, and though it were going smoothly or "rolling" along. As for locating the places where these trees with yellows were seen, it is next to impossible after these many years. It may be that the disease was local—introduced with the trees—and that the conditions were unfavorable for its spreading. It is in the favor of this view, that those who are writing about it evidently do not know what it is. If common, they would not write like this.

Forcing Strawberries.—Few things better indicate the differences between the climate of this part of the world and of England than this from the *Gardener's Chronicle*, regarding the forcing of strawberries at the Marquis of Salisbury's, at Hatfield House: "Strawberry forcing on an extensive scale is carried out here. Black Prince is used for the earliest crop. This year it has been all fire work, for up to the end of February we have not had many hours sunshine since the commencement of the year. The first dish was gathered on the last day of February. The crop is a really good one; the fruit as large and plentiful as would be a creditable performance if ripe a month later. Vicomtesse Héricart de Thury is grown to succeed Black Prince, followed by President, Sir J. Paxton, and Sir C. Napier. Five thousand are forced."

At Senator Cameron's, at Harrisburg, Pa., where the forcing of the fruit, under the care of the gardener, Mr. John Paget, is a great success, it would not be thought anything extraordinary to gather the first ripe fruit on the first of February; and then the superior crop at Senator Cameron's would astonish our English friends. The writer has seen the forced strawberries in both of these places, and Senator Cameron's fruit is much superior to those at the Marquis of Salisbury's both in size and productiveness. Our bright, light weather is a great aid to good skill.

Wash for Trees.—W. A. M., Philadelphia, says: "Seeing in your February number, page 49, a wash for trees, I only wish to remind your patrons that the following wash (although not new) is the best we ever used. Perfectly harmless as to any injury to old or young trees; I speak particularly of fruit trees. It can be applied with a whitewash brush. If the trunks of the trees are moist, the wash will penetrate better and be more expeditiously done. Wash as high as can be reached above the trunks. The mixture consists of clay, cow manure well rotted, and lime, the latter in moderate quantities, made to the consistency of whitewash. The color depends upon the different ingredients, whether dark or light. I have been familiar with the use of it for forty years."

Packing Apples for Export.—We had a notice recently, credited to the *Gardener's Record*, in regard to the packing of American apples. In Covent Garden market, those from the United States had those on the top larger than those below, while those from Canada were the same in the barrels all the way through. This should have been credited to the *Garden* and not to the *Gardener's Record*. The kindly intended cautionary paragraph was from the personal investigations of Mr. Robinson. After all, it is the way of the world to put "the best foot foremost," and few are deceived. At the Centennial Exposition an English picture received great credit for its "fidelity to nature." Among other features in the picture a kitten had upset a basket of strawberries, and the way in which the whopping big strawberries "on top" went rolling a long way ahead of the little fellows at the bottom, was especially admired as being true to life. No one suggested, that ever we heard, that "topping over" was not an English strawberry practice, and that the artist had slandered his own countrymen; and from this experience it was rather unexpected to find a grumble when the American cousin imitated the example in the barrel of apples. Still for

all this, we commend the conscientiousness of the Canadian apple packer, and the industry of the London apple buyer in discovering it. It may be that the time will come when the true inwardness of all things will be conspicuous on the outer shell, and then those who began the reform will be blessed. For the present it would seem that the polish on the outside must be always expected.

GRAPE CULTURE IN VIRGINIA.—A correspondent from Albemarle county, Va., gives the cost of planting and cultivating an acre of grapes till they bear, as $17.80, and $14 per acre as the subsequent cost. The original cost of the land not stated. After they come into bearing the crop brings from $37 to $137 per acre. Concord is the most popular. There are about two hundred acres within points accessible to Charlottesville.

PEACHES AND OTHER FRUIT IN TEXAS.—A. R., Galveston, Texas, March 26th, writes: "Spring has fully opened here. Peach, pear and apple trees in full blossom. The past winter proved fatal to our orange trees and oleander plants, the latter being killed for the first time in the memory of the oldest inhabitant."

MOSS MULCHING.—Mr. Henderson's paper on moss mulching, which appeared in our columns last year, is having republication all over the world. The idea of putting fertilizing material among mulching matter near the atmosphere and yet in the moist darkness which the feeding roots love, is probably the perfection of culture.

ROOTING BLACKBERRIES FROM THE TIPS.—Mr. Samuel Lockwood, a distinguished scientific man, writes as follows to the Torrey *Bulletin*: "When the Delaware grape vine first came into market, I bought a young vine. It had a large root, but it was a cutting from the tip-end of the branch. The cupidity of the trade spared no part of the branch in making cuttings. The result was that after nursing my vine for several years, it was still a worthless, feeble plant. At the time of the introduction of the Lawton blackberry, a farmer not far away raised a plantation of the canes, and offered them for sale at a round price, from which he would not deviate. A farmer bargained with him at a fixed price per thousand for a part of the plantation. This was in spring. It was agreed that the plants, without any extra cost to the buyer, should be allowed to stand until fall, till which time the purchaser should be allowed to do anything he pleased to or with the plants. In a word, he bought that part of the plantation. To the dismay of the dealer, his patron came at the proper time with an immense number of little forked sticks; and, taking one of them in one hand and bending down the tip-end of a cane with the other, he pinned it firmly to the ground. This was done with his entire purchase. He then advertised a stock of Lawtons for sale in the fall, mixing the feeble plants begotten from the tips in with the stronger ones. I heard that this bit of sharp practice proved a good 'spec.' The original planter in his chagrin declared it a '*tip-top* fraud.'"

It will be news to many that the Lawton blackberry was ever raised from tips,—still more news that there would be a "tip-top fraud" in such plants. There are some raspberries and blackberries which will root in that way, and we question very much whether 90 per cent. of good cultivators would not prefer plants so raised to plants raised by any other mode. And it is more than probable that the phylloxera had more to do with the feebleness of his Delaware plants than the tip-end of the cane had.

THE SPARROW IN AUSTRALIA.—An Australian paper says: "The sparrows are devouring the fruits of the fig in the neighborhood of Adelaide as fast as they begin to ripen. In some gardens it is next to impossible to get a ripe fig to eat unless the trees are protected by nets. Figs are not the only fruit attacked by the sparrow, for apricots and early plums are rendered mere skins. Berry fruits stand no chance whatever against their attacks, and there is the probability staring us in the face that, like the Melbourne growers, we shall be compelled to resort to extreme measures to secure even a moderate crop of fruit for sample; yet nothing is done to avert the evil."

ENGLISH GOOSEBERRIES.—It seems they can raise these as well in the Oceanic Islands as in England. "A fine sample of gooseberries," says a Tasmania paper, "were sixteen in number, weighing sixteen and a half ounces. Last year a gooseberry competition was started by your Flowerdale correspondent, with thirty-two to the pound, followed up by others till the number was reduced to about fourteen or fifteen to the pound. If any of your readers can beat the above I hope they will not be backward in coming forward."

THE MONROE PEAR TREES.—The large pear

trees at Monroe, Mich., were recently visited by Dr. Warder, and found to measure thirteen feet in circumference at five feet from the ground. They are approaching a hundred years old. The pear seems by this to be very much at home in Michigan.

EARLY STRAWBERRIES. — Strawberries from Florida, three days by railroad, were in very good condition in Philadelphia markets in the middle of March, at twenty-five cents a quart. They were some two weeks later this year than last.

CINNAMON AND CAMPHOR TREES.—These have been introduced into Australia, and succeed so well as to promise great profit.

MAMMOTH PEARL POTATO.—A correspondent speaks highly of this variety. We have had no personal experience, but believe from this report that it is well-worthy of a trial.

NATURAL HISTORY AND SCIENCE.

COMMUNICATIONS.

THE MODERN DIET OF WORMS.

BY W. F. P., SAN BERNARDINO, CAL.

The Abronia grows almost invariably on sandy soil. The plant is of such a viscid nature that it is difficult to procure good herbarium specimens, on account of the sand and rubbish that adhere to the leaves and stems. Where they are abundant they make a fine show with their bright colored flowers and pretty foliage. During their season of flowering they are eagerly sought after by a large and ugly worm or caterpillar. The Indians now hold their grand annual "worm feast," the squaws go out to the Abronia patches which cover acres, with their big conical baskets strapped to their backs. Squatting on their haunches, they secure a worm,and by a dexterous twist only acquired by long practice, they snap off its head. A rapid movement of the thumb and finger extracts the undesirable portion and the dressed worm is thrown over the shoulder into the basket on the back. The movements of capturing and cleaning (?) of this class of game is conducted with great rapidity by an old well trained squaw, who will soon fill her basket. Then holding the straps that run across her forehead until the pressure settles and fixes the load firmly to the back, she soon toddles along into camp where the "Papooses" and "Bucks" gather around and feast on those delicious morsels. The great drawback to the worm feast is that there is no way to preserve them fresh, being perishable if kept long, and show most undoubted signs of decay. Salt brings out a disgusting color, appearance and taste, I am informed. Therefore there is a great gathering together of all the friends and relatives from the valleys and hills, and great is the guzzleing and stuffing that takes place. The Papooses become if possible, more pot-bellied than ever, and all hands wax fat and greasy on the succulent meal As long as the Abronias last there is feasting and plenty in the wickajups of the tribe where all do little else but eat. They say "the Good Spirit made the plant, and sent the worm to eat the plant, and the Indian to eat the worm."

This diet of worms, is, I think, not one of the vices they have acquired from the white man. Our skirts are clean of that at least. I believe we are credited with furnishing them with almost all our vices (which in addition to the large stock of their own, make a long list,) and none of our virtues, as they never had any of their own; that accounts for the total absence of any good in them now.

WATERING PLANTS BY LEAF ABSORPTION.

BY IRRIGATUM.

The idea is quite common that the foliage of plants absorbs moisture while growing; and that the leaves cannot be kept healthy without frequent sprinkling. It rains on plants out doors, so we imitate the rain in doors. But according to the experiments of Bousingault, most leaves absorb moisture only when wilted, and never wilt when there is a normal supply at the roots. Hence I think the watering of foliage not only

a useless operation but injurious. If water could be applied without touching the leaves it would be all the better as far as health is concerned. The leaves do not need to be rained on or thrashed and turned by the wind to make them healthy. Water appears to be most injurious to leaves which transpire fastest. Some of these—and noticable in Caladium esculentum—are very glossy and grow inclined, and shed water as if oiled. If these are placed more horizontal and kept wet it soon injures them, especially in the sun, and when they get old so that the water really wets them they soon die.

The past winter a pomegranate and geranium tried a neat experiment. The pomegranate was growing rapidly and there was a small drop of water on the tip of each young leaf most of the time. One of these leaves was about one-fourth of an inch above a geranium leaf; the effect was to kill a spot one inch in diameter while the rest of the leaf remained healthy and green. Some might think the leaves of the pond-lily required the water to rest upon while growing but it is only the old leaves that lay upon the water. The young leaves grow several inches out of the water, and will grow vigorously for months without touching the water. When the old leaves get so they do not shed water they soon get drowned.

Parisitic plants which require a damp atmosphere, transpire the least of any, and really need much less water than those that root in the ground. Because they are mostly dependent upon the moisture of the atmosphere, we must not suppose they need as much water as do those which have a permanent supply at the roots and are not dependent upon the atmosphere. In traveling through the South one will see the finest specimen of "Spanish Moss" in ravines where there is a constant evaporation in the day and condensation at night.

The leaves of plants are frequently compared to the lungs of animals, but they correspond to the digestive organs rather than lungs. It is the under-side of the leaf which transpires water and waste product, and the upper side which is exposed to the direct rays of the sun that the main chemical transformations takes place. When a plant grows the sap-water must carry in solution the necessary alkalies for digesting the carbonic acids. So if we make plants grow at all by leaf absorption we must mix in the required alkalies. Would this not be about as absurd as to bathe infants continually in milk to make them grow. Again the transpiration and circulation must be continous during growth and it would not be consistent for plants to absorb water and transpire it at the same time.

During rapid growth in sun light transpiration is about five times as much as at night. This would also indicate that the growth taking place in daylight did not need a moist atmosphere, and that the heat and light of the sun and a dry atmosphere which facilitates transpiration is most essential to hardy growth. We hear much of the dry air of the living room, but what is that compared to 90° in the shade and 130° in the sun with the wind at 40 miles an hour. It is not convenient to sprinkle plants in the house, and if it assists growth I have yet to find it out. I grow (not merely keep them alive) some thirty species and never think of watering the leaves. I have leaves four years old, green and healthy, that are within eight feet of the stove.

EDITORIAL NOTES.

JUVENILE FORMS OF CONIFERÆ.—It has been long ago explained by the writer of this, and by Mr. Hoopes in his "Book of Evergreens," that many of the curious forms of Junipers, Arborvitæ and Retinispora, which are well known to cultivators, are but juvenile conditions of well known species. All these plants change their form under different conditions of vegetative vigor. Now and then an individual retains its juvenile form through life, and continues this form even when increased by cuttings. They are in a sense vegetable imbeciles.

It is surprising that this knowledge travels so slowly in Europe. Our poor little 'Tom Thumb," which we all knew to be but the American Arborvitæ, pure and simple, it was insisted by our friends on the continent of Europe must be one of the Japanese Retinisporas, and it figures in their writings to this day as "R. Ellwangeriana." They are still puzzling over it in Europe, and now, seemingly satisfied, have given the whole set new Latin names. Our Retinispora squarrosa is translated to "Chamæcyparis pisifera squarrosa," which we may note, by the way, will have to be again corrected, as it is a juvenescent of R. obtusa and not of R. pisifera. Our Juniperus ericoides and Widdringtonia ericoides, is pronounced to be Chamæcyparis sphæroidea ericoides. It may be noted here, that in our thirty years of experience with

numerous plants, the writer never saw one plant which "went back," or rather advanced enough to betray its relationship. Another is Biota orientalis decussata; a long list of synonyms is attached to this, among which we recognize only our old friend Biota meldensis. That this is really nothing but Biota orientalis, the Chinese arborvitae, we can confirm through one plant advancing far enough to bear a few cones. Our "Tom Thumb" is to be Thuga occidentalis ericoides. It is certainly Thuja occidentalis; but what is to become of another Thuja "ericoides," which, also a "juvenile" which grows columnar, "Tom Thumb" or "Ellwangeriana," as our friends prefer to call it, growing nearly globose; or the other two or three with spreading and all sorts of habits, which people pick out now and then out of their seed beds? We would suggest to Mr. Hemsley that the first be called Thuja occidentalis ericoides globosa; the other, Thuja occidentalis ericoides globosa pygmæa; the third, Thuja occidentalis ericoides columnaris; and the one with the darker colored leaves, Thuja occidentalis ericoides columnaris purpurescens. One of these kinds has been found to be better suited to the far north than the other. This fact may warrant the name of Thuja occidentalis ericoides columnaris purpurascens borealis, a name long enough surely to make the "variety" run into popularity like wild-fire.

But seriously, allowing that a real variation from a normal type should be worthy of a botanical name as a botanical variety, what has a botanist to do with a separate botanical name for what is confessedly but a juvenile form of the same thing? Indeed, why should garden varieties have botanical names at all? We could never see why the slight variations of trees and shrubs should have botanical names any more than pansies or pumpkins. It really seems to us that this practice does more to prejudice the proper use of botanical names in the multitude than the "hardest" generic or specific name.

AVERAGES.—There are few more deceptive rules for practical men. Averages of the weather for March are illustrations. Every one interested in gardening knows that we have really had the coldest month ever known. But we must not believe this if we look at the figures of averages. Before us are some figures kept by Mr. Terwilliger, of Saratoga. Our month shows an average of 34¾°, while the 1880 March had but 32¼°, and 1879, 27°. But any nurseryman's record books in the Eastern States will show that the Marches of 1879 and 80 were very favorable to work, while in March 1881 he could hardly "stick in a spade." The thermometer may stand at 30° for six days, but if for one single hour on the seventh day the temperature rises to sixty, as it sometimes will, we are to declare that the thermometer was above freezing point all that week; at least there is 34¼° all in consequence of that solitary hour. Scientific conclusions, manifestly wrong, are founded often on "averages." A family with half a dozen boys, may have five doltish fellows and one extraordinarily quick. "On the average," it is a very smart family, but practically it is something else.

RAFFIA FIBRE.—We had an inquiry some time ago, which we could not answer—as to the plant which produced the Raffia fibre, now so popular with florists for tying. By a note in the *Garden*, from Mr. W. B. Hemsley, we see it is referred to a species of Sagus, a genus of palms. He spells it "Raffia," not Roffia, as some do.

THE HERBARIUM OF THE ACADEMY OF NATURAL SCIENCES OF PHILADELPHIA.—None know better than the lovers of flowers how important it is to have at command a complete herbarium, as well as a first-class botanical library. Our plant names would be in endless confusion but for them. In various parts of the United States liberal individuals are continually donating sums of money for new botanical enterprises. It is much better to complete that which has been well begun than to have so many languishing enterprises. We give the following from the Bulletin of the Torrey Botanical Club of New York, chiefly to impress on the reader, "it may be hoped that ere long some public-spirited individual will be incited to make an endowment that shall provide for this and other botanical work." A bequest, say of $30,000 for these purposes would materially aid in making this collection one of immense value to the horticulture and botany of the United States:

"The Academy of Natural Sciences, of Philadelphia, was founded March 21st, 1812, by a few citizens 'interested in the study of the works and laws of the Creator.' From the outset the department of botany received a due share of attention, and the first contribution to the Academy's Herbarium consisted of a number of plants made in the environs of Paris and presented by Nicholas S. Parmentier, and still in excellent preservation.

"During the years which followed, this little nucleus received constant accretions from the working botanists of the day, and the names of Collins, Elliott, Pursh, Baldwin, Leconte, Conrad, Nuttall, Torrey and Pickering are noted upon many of the early tickets of the Herbarium.

"In 1834, the Academy received the bequest of the collections made by Rev. Lewis David Schweinitz during a

period of forty years. Most of the North American species were collected by him self, but many came from Dr. Torrey, Major Leconte, Rev. Mr. Dencke, and other correspondents. The European species were contributed by Weldon, Bentham, Brongniart, Schwaegrichen, Steudel and Zeyher. The Siberian plants were furnished by Ledebour, and those of India by Wallich and Steinhauer. Many Chinese species were collected by Mr. James Read; and from the arctic regions were plants collected by the navigator Parry, and received through Sir William Hooker; while from South America were rich collections made by Von Martius, Huffel, Hering and Baldwin. But perhaps the most valuable portion of the bequest consisted of the extensive series of the lower crypt gams, of which Schweinitz had made a special study.

"Other valuable contributions followed the bequest of Schweinitz, among which may be specified the Poiteau collection of St. Domingo plants; Chilian plants from Dr. Styles and Dr. Ruschenberger; Nuttall's collections made in his expeditions to Arkansas, Oregon and the Sandwich Islands; Menke's herbarium of 7,000 species of European plants derived from Thunberg, Sprengel, Bernhardi, Treviranus, Mertens, etc.; the Ashmead collection of marine algae; Lesquereux's collection of over 700 species of algae; authenticated by the best algologists of the age, and a large collection of cryptogams from Ravenel.

"More recent additions are the herbaria of the late Thomas G. Lea, of Cincinnati, and of Dr. Joseph Carson, late Professor of Meteria Medica in the University of Pennsylvania; a large collection from Southern Europe and from India, made by the late John Stuart Mill, received from Miss Taylor through the Director of the Kew Gardens, and the kindness of Dr. Gray; the collections of the late Dr. Charles Pickering made in his journeyings through oriental regions in 1844 and 1845; Syrian and Algerian plants from Dr. George E. Post, of Bierut; Floridan plants from Dr. Garber; Mexican plants collected by Parry and Palmer; and a set of the mosses and hepaticæ of North America, collected and named by the late Coe F. Austin.

"But the most important accession to the Academy's Herbarium is yet to be mentioned. After the death of Dr. Charles W. Short, of Louisville, Ky., in 1863, the splendid collection of American and exotic plants which he had accumulated and arranged in sumptuous manner, became the property of the Academy, on condition that it should be kept distinct and apart, and open to the inspection of botanists, under the name of the 'Short Herbarium.' For this, the Academy was indebted to the strenuous exertions of Dr. Gray in its behalf, and to the liberality of Dr. Short's family. The plants of this collection are uncommonly choice specimens, from all the active collectors up to 1863, and are laid in sheets of extra size, arranged in 325 book-form cases, of which the North American species occupy 261, and the exotic species 64. Even without the restriction under which this collection was received, there would have been abundant reason for keeping it apart, sacred to the memory of the accomplished botanist who formed it, and to whom Dr. Gray dedicated the rarest and and one of the most beautiful of North American genera.*

"The work of arranging the earlier collections of the Academy, was mainly accomplished by Nuttall and Pickering, followed later by Goddard, Bridges, Zantzinger, Durand, Burk, Meehan, Redfield and Scribner. Until the removal to the new building, in 1876, the arrangement had been after the Linnæan system, in large cumbersome portfolios, in a narrow, dark and inconvenient hall. The removal gave opportunity for entirely new arrangement, more in accordance with the progress of the science, on enclosed shelves after the most approved modern methods, and in well-lighted apartments convenient for reference and study. The work of mounting the plants upon standard paper has been begun.

"In 1854, the lamented Elias Durand began the of work forming a special North American Herbarium from the stores of the Academy, contributing largely from his private collection, of species collected by Lindheimer, Fendler, Wright and others. In this labor he was occupied for four years. Since his death the work of perfecting this department has been continued, and nearly all of the collections made in our newer territories by Parry, Lemmon, Palmer, Kellogg, Ward, Rothrock and others have been contributed at various times by Gray, Canby, Parker, Meehan, Rothrock, Martindale and Redfield. This collection and the 'Short Herbarium' occupy the upper of the two rooms devoted to botany, while the lower room contains the General Herbarium, and a large case devoted to the reception of fruits, seed-vessels and other vegetable productions.

"All these collections are now in charge of the Botanical Section of the Academy. Their chief value lies in the large number of species from early collectors, and of type specimens of early authors. Most of Nuttall's early species are deposited here and have been the vouchers used by Torrey and Gray in deciding upon their specific validity. Schweinitz's own types of his new fungi, lichens, etc., are here, as well as many of the types collected by Bigelow and others in the Whipple Exploration, bearing tickets in the beautiful chirography of Dr. Torrey.

"So old a collection, much of it running back for sixty or seventy years, might be expected to have suffered from the ravages of insects, and from the crumbling effects of time. Some portions have, indeed, thus suffered, but careful attention and thorough poisoning have kept this destruction within narrow limits. Many of the species from tropical regions have remained undetermined, and in fragmentary condition. Dependent as the Academy has mainly been, upon volunteer and occasional supervision, it has been impossible fully to determine all new accessions, or even properly to care for the old. All should be carefully worked over, the redundancies sifted out, the hiatuses filled, and the work of mounting carried on to completion. It may be hoped that ere long some public-spirited individual will be incited to make an endowment that shall provide for this and other needed botanical work.

"It is always difficult to ascertain the number of species in a large herbarium, and estimates are apt to be excessive. In collections received from many sources, there will of course, be a large amount of duplicating. Doubtful, imperfect and undetermined specimens increase the difficulty, and the varying ideas as to the true circumscription of specific limits add another element of doubt. The Academy's Herbarium has been estimated to contain as high as 70,000 species, an estimate made doubtless without proper regard to the large number of species common to the several collections of which it is made up. Recent estimates, based on portions which have been carefully worked over, would give the number as not less than 40,000, nor more than 45,000 species.

"In preparing this notice, free use has been made of the history of the Academy's progress and condition, prepared by Dr. Ruschenberger, who has been for nearly fifty years one of its most active members, and for the last eleven years its presiding officer."

QUEBRACHO BARK.—This is a new competitor with cinchona or quinine. It is Aspidosperma quebracho, an apocynaceous plant, and a native of the Argentine Republic. We have an interesting paper on it by Dr. Ad. Hansen, republished by the *Therapeutic Gazette*, of Detroit. The paper includes a drawing of the plant.

THE ELM TREE BEETLE.—In Philadelphia we have two bad elm beetles, and probably a few more that are good for nothing. One seems to have been with the trees for many years, chiefly on the English species. There are noble trees

* For a tribute to the botanical labors of Dr. Short, and some further account of his herbarium, see Dr Gray's obituary notice in the *Amer. Jour. Sci.* 2d series, Vol. xxxvi., p. 130, Nov. 1863.

in Germantown, planted before the Revolution, which drop all that is left of their leaves in July from the work of this little miscreant, but get a new crop of green leaves before the frost comes. These trees have thus suffered for nearly thirty years to the personal knowledge of the writer. Another species of beetle of later introduction, seems to prefer the American elms. They do not so completely skeletonize the leaves as do the others, and though the leaves are pretty well riddled, they do not usually fall as in the case with the European varieties. This beetle is easily seen, as it is as large as a grain of wheat. It falls to the ground on the slightest alarm, and lies motionless for some time as the curculio does. Mr. Charles H. Miller, landscape gardener at Fairmount Park, wrote to Prof. S. S. Rathvon about them recently, who replies in the *Lancaster Farmer* that the beetle is the Galeruca Xanthomalæna. It hibernates under cover in winter and has two broods, the latter the most destructive. The larvæ usually crawl down the trunk, or fall from the trees in July and August and pupate in the ground. From this it would seem probable that if hay-bands were placed round the trunks of the trees, as is done for the codling moth, large numbers might be caught and destroyed. Those which fell would of course escape, but perseverance for a few years would soon lessen their numbers materially.

SCRAPS AND QUERIES.

PRONUNCIATION OF PHYLLOXERA.—T. S. P., Kingsburg, Cal., asks:—"How shall we pronounce Phylloxera? Prof. Hilgard of the University of California, says it is 'pronounced as if spelled fillo-xee-ra; emphasis on xee.'" (See supplement No. 1, report of the Board of Regents.)

[The word Phylloxera is made of two Greek words; but it is a single word now, and must follow the rules for single words. Professor Hilgard's pronunciation would hold good as regards the two original words, but we do not think it will in the case of a single word; x is pronounced like ks when in the middle of a single word, and this necessitates the pronunciation filloks era. We have a similar case in botany, Xanthoxylon, which is universally and we think correctly pronounced. Zanthoks ylon, not zanthos-zylon, as it might be in the original two words.—Ed. G. M.]

DOUBLE CAROLINA JASMINE.—D. W. Langdon, Mobile, Ala., sends specimens of this which are "double as a rose" and quite as fragrant as the single kind.

FREEZING OF THE SAP.—B. J., Cleveland, O., writes:—"I notice that you say in your papers, on this subject that a living organism cannot have its juices frozen, and yet live afterwards. I think it would serve the cause of horticultural science, if you would give us some specific illustrations of this."

[We have let our correspondents of late have their say without comment, as there seemed nothing more to add to what has been already stated. If, however, our correspondent desires "specific illustrations," perhaps he cannot do better just now than take the flower bud of a peach. In winter it is wrapped up in its little nest of down, and generally does not freeze. But if the bud loses its specific heat and the frost enters so as to reach the little bud so full of moisture in comparison with the dry bud scales, he will find on a thaw that it is black. In other words it died after it became frozen. The adjacent parts of the peach did not freeze and did not die.—Ed. G. M.]

LITERATURE, TRAVELS AND PERSONAL NOTES.

COMMUNICATIONS.

NOTES AND QUERIES—No. 24.

BY JACQUES.

Persimmons.—Fine specimens of the Japan persimmon have reached the writer from California—one that was quite ripe was delicious. The tree bears profusely, each little stem, and those near the ground on very young plants are loaded with fruit, three in a bunch. With the grand citrus exhibit that is to reach the Atlantic cities in May will come, no doubt, numerous specimens. The persimmons are about as large as an average tomato, with a color much the same as the faces of the Japs.

Apricots are successfully canned at Santa Barbara, California, and are large and luscious.

Hardy Bamboos, &c.—Attention is called in England to a list of bamboos that are hardy under cultivation there. Also to a hardy Cactus from the Rocky Mountains, Begonia from the Andes, the well-known Chamærops excelsa, and a Mesembrianthemum acclimated in Sicily; and the Ficus repens is hardy at Kew Gardens. There is a bamboo hardy at Philadelphia, but of no great beauty.

The Power of Movement in Plants is the title of another work by Charles Darwin, assisted by Francis Darwin. It is even more interesting and curious than the previous one noticed in this column on their twining. It proves motion in the roots and leaves. In the former this gives the tip the power of avoiding difficulties of hard ground, or rather of selecting the softest course, and of going to the moistest as well as occupying any worn route. We can only indicate the importance of the book. It will be sought by those who love the study of nature, and will be found to be the most important of Darwin's botanical works.

Thinkers will be interested in an article published in *Nature* on Evolution and Female Education. It says, very truly, that man, by opposing the intellectual advance of woman for countless generations, has enormously injured his own advance—by inheritance. One notoriously not uncommon ground adduced is, that women already are, as a rule, somewhat inferior to men, forgetting that they were precisely made inferior by the obstacles thrown for centuries in the way of their advance,—some of these specially fixed by legal enactment. If there is one thing more certain than another it is that man can never hope to progress with satisfactory rapidity without having a sharp eye to the conditions necessary for this object, and examining all his customs to see if they are desirable or not.

W. M. C. will find the tree box the best evergreen for Philadelphia and for cities south of it.

Oak and beech leaves make the best manure for the gardener, but of course it is difficult to keep them from others. The oldest and the youngest poets speak of leaves. It is Homer who compares the generations of men to the generations of the leaves, as they come and go, flourish and decay, one succeeding the other, unresting and unceasingly. Swinburne poetises thus:

> "Let the wind take the green and the grey leaf,
> Cast forth without fruit upon air,
> The rose leaf, the vine leaf, and bay leaf,
> Blown loose from the hair."

Old hyacinth and tulip roots, which have served their term and lived their season, may be planted in the grass, and each year they come up half-wild like the snow-drop, each year more numerous and more effective.

The Lower Animals in Health and Disease, by W. Lauder Lindsay, London and New York, we cannot altogether commend; it is careless in part and unsound. The story taken from the *Animal World*, that some old rats, finding a young one drowned, "wiped the tears from their fore paughs," would almost condemn any book There is, however, considerable research and some good stories, but the book will not take any good place in the literary world. It is quite too elaborate and too long for general readers.

The following is an old receipt for testing the age of eggs: Dissolve 120 grammes of salt in a litre of water. An egg put in this solution on the day it is laid will sink to the bottom; in a day old will not quite reach to the bottom of the vessel; an egg three days old will swim in the liquid, while one more than three days old will swim on the surface.

Cinchona bark, of superior quality, is now furnished from artificial plantations in the island of Jamaica.

"ALAS! OUR BROTHER."

BY W. T. HARDING.

A clew seems at last to have been found which will apparently lead to something more definite in regard to the fate of the long lost Dr. Leichardt, who disappeared in the inhospitable wilds of Australia sometime in 1848. Herewith I forward "the statement telegraphed from Sidney, N. S. W.," as the newspapers have it.

"The statement is telegraphed from Sidney that the remains of Leichardt, the Australian explorer, have been discovered, together with his diary and other relics. Leichardt was an able young German botanist, who set out to explore the then least known part of Australia, some twenty years ago. He disappeard, and though expedition after expedition was sent in search of him and his companions, no traces whatever were found of the party. Rumors came in from time to time that he was detained among the blacks or that he had been cut off by them, but nothing was definitely known as to his fate.

Now it would seem that his trail has been hit upon by accident, and the full story, if it has really been made out, will be awaited with anxiety "

Poor Leichardt, who in attempting to solve the geographical problem of Australia, started from the Fitzsroy Downs, Queensland, in 1847, with the view of penetrating the dense scrub, and pushing through the *terra incognita*, succeeded in making his way to the Cougoon, from whence his last dispatch was dated, April 3d, 1848. What subsequently befell the unfortunate explorer after then, has remained a mystery, until his bleaching bones were recently discovered.

Dr. Leichardt in his day, was well and widely known as an eminent botanist, and intrepid explorer, and most good gardeners who have observing eyes, have seen some of his contributions to the conservatory.

When the writer was a denizen of that distant land, the name of the hapless adventurer was cherished as a household word, and was ever kindly remembered, and reverentially spoken of by all the good folk, who looked upon his loss as irreparable. Endowed as he was with every noble attribute which makes a man; so generous, useful, wise and good, his untimely taking off left a sad void in the hearts of his many friends, most difficult to fill. Hopeful, persevering, industrious, intelligent, and enthusiastic, the brave young savant fell a martyr to science, in the early morning of life; ere the sun of his existence had reached the meridian, it was eclipsed forever.

Fuller details of his melancholy fate will be anxiously looked for, as the present account is too meagre to be satisfactory.

WANDERINGS OF A CORRESPONDENT.

BY V. D. N., WASHINGTON D. C.

It will likely surprise you not a little to learn of my return to America. Sometime in last April I left Australia for my native land, Russia. Through so many years absence, estranged to all and everything, I found it rather difficult to keep along smoothly with the prevalent customs of the country, so I took up again my wandering staff to set out for another land. Since then I have been about two months in England, and left a short while ago for this country. It is an old saying, "no one wanders beneath palms with impunity," and so perhaps it stands with me now too; and certainly the recollection of those tall, slender gum trees of that beautiful country beneath the southern cross is still too fresh in my memory, and often as by a magnetic power, I find my thoughts unwillingly wandering away to that far-off land; and I truly believe I never would nor could forget all the beauties and grandeur of nature I came across in my rambles throughout the Queensland bush and forest.

Words would fail me to assure you how gladly I felt pleased to see in the January number of the GARDENER'S MONTHLY your comment on the collection of Mr. W. Hill's timbers of Queensland. It is perhaps the first time on record such a complete collection of samples of timber yielding trees of Queensland, of only one of the Australian colonies has been exhibited, and Mr. Hill with his indefatigable energy well deserves all merit for collecting and preparing those timbers. No one could hardly credit how much trouble and actual labor is attached to this. Many of those logs were brought hundreds of miles from the interior, or dragged over on horses from the deep ravines of the rugged coast ranges on the Cape York Peninsula. The collection as it stands, with the botanical arranged and practical descriptive catalogue shows the fine knowledge of botany Mr Hill possesses of this colony, and I sincerely hope he may be spared for many a year to come to continue the good work he is doing among his fellow colonists. Although true, the forests of the red Australian cedar Cedrela Toona, and the Kauri or Dundathu pine Damara robusta, are fast disappearing notwithstanding the protective law under the axe of the timber gatherers, I would like to call your attention to the facts, to the immense number of plants and trees of this kind distributed annually among the settlers by the director of botanical gardens Brisbane. As the heaviest items stand foremost the Cedar cedrela toona 20,000 plants; Damara robusta, 10,000 plants; Grevillea robusta, 10,000 plants; Araucaria Bidwillii, 8,000 plants; Coffea arabica, 10,000 plants; Thea bohea, 3,500 plants; T. assamica, 500 plants; Ilex Paraguayensis, 300 plants. All this is grown at the "Forest Reserve Nursery," at Indooroopily near Brisbane. Among valuable acquisitions made lately at this nursery belong the American catalpa, Taxodium distichum, Liriodendron tulipifera, Acer saccharinum, the hickory and some thousands of the honey locust, the Gledischia, the seeds of which I had collected from the old venerable specimens

on my frequent visits to the "Bartram Garden," while living at Darby road. The locust is known and commonly called among the colonists as "the Bartram tree." Thus perhaps, never expecting at the time to return to the States, I have planted in Australia a living sourvenir of Bartram and his garden. It may perhaps also interest you to hear that on my last visit to my home in the Crimea, I discovered that the phylloxera had already found its way to the vineyards there; the plague having been introduced by an amateur grower, by smuggling grape cuttings in from France. By the latest news I heard the Government is taking due precaution, as some hundreds of acres of grape have been rooted out and burned. I hope they succeed in checking the farther progress, as the forests along the whole southern and best portion of this wine growing district, are overrun by a wild grape. Should only the phylloxera get a hold among them, I believe it never could be exterminated.

A WORD TO YOUNG GARDENERS AND YOUNG FARMERS.

BY R. C. POPPEY, POUGHKEEPSIE, N. Y.

How often we hear expressions of discontent among gardeners, and who, not seldom severely censure their fathers for having been so weak-minded as to encourage their boys to become gardeners, when so many, and by far more elevating vocations stood at their pleasure; and with a long sigh they continue—I don't know where the old man's senses were when he allowed me to become a hog-ri-culturist, which has doomed me to everlasting isolation from educated society,—yes more, made me its servant, where, had my father put me to a good school, or when he took me from school, had asked what profession I wanted to choose, I might to-day be somebody, whereas now I am nobody—raising weeds for an old woman; what anybody can do. What anybody can do is just where the fault lies, not with gardening alone, but with all vocations. To only be able to perform the simplest part, and that part which anybody can do, deserves no credit, and the fellow is not entitled to any marked respect from an educated person. The mechanical part of all vocations is simple. A professor that only knew the A, B, C, and only able to count up to ten, would be in the eyes of the community just what the man is that "can only grow weeds for some old woman." An architect that can only draw the lumber to the place where a man wants a house built, and have that man strike off the space, and tell him where every board is to go, cannot look for the same respect that is shown the one that furnishes plans, estimates, stakes it off, and puts up the whole house in a twinkle of an eye. A doctor that knows no more of his profession than an old woman from the country, will live just as isolated from educated society, as the gardeners "that can only grow weeds." Every vocation has its scientific points, and depends upon development by every one that takes to it, even if it is to make it his livelihood.

A professor of mathematics does not sit in his studio waiting for some one of some other profession to furnish him with solutions of problems. The chemist does not sit in his laboratory expecting the doctors to furnish him with what his duty calls for him to do. But the gardener sits in his greenhouse, and expects the professor, the chemist, the doctor, and not seldom a preacher, to tell him all that is wonderful about plants, when by rights as much of that knowledge, if not more ought to come from him. Just as life is, as you make it, just so it is with your profession. It is not the mechanical part that commands respect, it is the intellectual part; and intelligence repels involuntarily all disrespect from the ignorant, and educated alike. Let your shoes and clothes suggest ever so much a change for better ones, if you are armed with that indomitable shield of intelligence you will control more true respect, than the one in fine clothes, lily white hands, and a latest style beaver on an empty shell. This compels me to make the remark here, that the fault I find with our horticultural and agricultural papers is, they fail to do one thing, which they ought to consider a part of their duty. That duty is to point out the course to the young men, that they should pursue in their vocation, and hold up the fact to them, that there is more than hard work and drudgery in it; that it is a large book with many blank pages, waiting for us to fill them out, with what has not yet been discovered and revealed. Occasionally we see an article in an agricultural paper on the subject, "Why do our young men leave the farm and seek employment in our large cities?"—pointing out to them in glaring terms, how foolish they are, they should consider what a happy and healthy lot of people they "be," knowing nothing of the trials and tribulations that burden city people, and that they are

the most independent class of people in the world, &c. Instead of finding out where the fault lies, they imagine one, and send an appeal to the parents. Fathers should give their boys as they grow older, some responsibility; it will make them feel more free, and inspire them with a sense of pride to do well, whatever they do. Mothers should make home pleasant, and by way of a change, for which all young men naturally long, invite the "sisters and brothers" around, and have a little praying band in the parlor, or in any convenient building on the place; not ascertaining first if that disgusted young farmer is of praying turn of mind; if he is not, it may make farmer's life even more obnoxious. Another one in some other part of the country, probably San Francisco, knows just exactly where the fault lies, he says it is "monotony,"—young men want excitement, and by the way suggest a very amusing thing which would prove a splendid nervine for young men that worked hard all day. They should start a "young men's farmer debating society," to hold meetings weekly; the coming together of all the young men (not to exclude the young ladies) of the neighborhood, would awaken new spirits, and for a time cause them to forget the hard work of the week past; it would greatly refresh them, and with renewed vigor they would "tackle" the work of the coming week; not forgetting to kindly furnish one or two interesting subjects for debate, viz., is Chinese emigration beneficial to a Christian community? Which is the mother, the hen that laid the egg, or the one that hatched it? Now such attempts to cram attachment into the young men for the farm, lasts about two months, and the Y. M. F. D. C. rolls it's eyes heavenward, and dies in solitude and bliss; and the young man hates the farm as much as ever. As I stated before, the editors of both papers should hold up the fact to the young men that their profession demands something more besides animal power; it wants further development, and that can only be done by using the brain as well as the hands. In farming and gardening there is so much yet to learn and improve, that it cannot afford to allow any one to be idle. But this cannot be accomplished by your hands alone; the brains if you have any, must do the largest portion, the hands only execute it. The gardener and farmer should follow his profession intelligently, and it has better facilities than many vocations to make us the most intelligent people on this earth. But if we let potting a geranium and plowing up a piece of ground be the extent, and the brain only acting in accordance with the muscles, our professions will always be considered only a necessary thing, and we a harmless and useful set of fellows.

EDITORIAL NOTES.

W. D. BRACKENRIDGE.—The *American Farmer*, of Baltimore, gives in its April number a portrait and sketch of the life of this gentleman, whose great services to American botany and gardening have not received near the recognition they are entitled to. He was born at Ayr, in Scotland, in 1810; studied botany and gardening so assiduously that at eighteen he was head gardener to Sir John Maxwell. He was a friend of Tweedie, and raised the seeds of his Buenos Ayrean plants, amongst them Verbena Tweediana, which was afterwards sent out by Mr. Brackenridge's friend, Mr. Robert Buist. As a landscape gardener, his work on the estate of Count Ebors, in Poland, was very successful. He left the Berlin Botanical Garden for Philadelphia as foreman to Mr. Buist, from whence he went as botanist to the famous Wilkes' Exploring Expedition. His splendid work on the ferns of the expedition was one of the most magnificent ever gotten out by the United States government, but were burned when ready for distribution; only a dozen advance copies or so being saved. The living plants collected on this expedition began the United States Botanic Garden at Washington. Mr. Brackenridge succeeded A. J. Downing, and finished his work as landscape gardener of the Smithsonian grounds, and has since settled down as a nurseryman at Baltimore. That his days may be long in the land is the earnest wish of all who know him.

DID NOT KNOW CELERY.—The smallest kind of wit is that which makes fun of other people's ignorance. A Massachussets paper says: "A young chap from Shutesburg, Mass., having his girl along, took her to dinner at a hotel not far from Amherst the other day, and the pair were seated together at the table. Directly in front of them stood a glass containing celery, the white, crisp stalks still having the green leaves on them. Never having seen anything of the kind before, and mistaking it for something ornamental, he turned to his sweetheart and remarked, in a drawling tone: 'That's a hefty bo'kay, ain't it?'"

We should not be surprised to learn that the chap who wrote the above paragraph did not know whether the "bo'kay green" grew above or below ground, and how it was made white for the table. Fitznoodle often laughs at Hodge, but Hodge's turn to laugh comes sometimes.

PORTAGE COUNTY (OHIO) HORTICULTURAL SOCIETY.—The excellent example of the Montgomery County Society is bringing forth good fruits by imitation elsewhere. We have here before us the proceedings of a younger body which promises a similar life of usefulness. Among other matters we note a discussion on "heat and foliation," suggested by a discussion in the GARDENER'S MONTHLY last year. The point whether the soil under grass was warmer or colder than soil clear of all vegetation was debated with considerable animation. As the meeting was held at a country residence which had "yard, garden and farm" attached, we supposed some five minutes would be spent in testing the point with a thermometer, instead of discussing each person's "belief" for an hour. But it proved to be the same old story, and the members went away, each confirmed in their previous opposite belief. One gentleman "did not believe Mr. Meehan ever cut cord wood when the mercury was 18° below zero." Perhaps Mr. Meehan has, and perhaps he has not; but he has put a thermometer under grass sod and under clear ground, when the sun has had an equal chance, and he has found the sod-covered tract the coolest.

ONTARIO AGRICULTURAL COMMISSION.—Report on Manitoulin Island, by William Saunders, of London, Ontario. There is no reason why the western portion of British America should not be as prosperous as our own Minnesota and contiguous territory, but no one knows anything about its merits. The Dominion government seems awakening to the importance of gaining and spreading information about this country. This report of Mr. Saunders is in this line. It shows how rich are the resources of this section. We note that even in this high latitude the pears, apples, plums, gooseberries, currants and grapes have been tried and are perfect successes, though so far as known no pear trees are large enough to bear fruit yet.

ILLINOIS HORTICULTURAL SOCIETY.—Transactions for 1880, from Secretary Galusha. This beautiful volume shows the society to be very prosperous and performing very useful work for horticulture in the State. Though commercial men form the bulk of its membership, there is a great amount of information peculiarly adapted to amateurs of the most cultivated tastes.

AMERICAN POMOLOGICAL SOCIETY.—Transactions of the session of 1879. This volume is a little late owing to the previous engagements of the secretary, but it is so well edited that the members will no doubt be well satisfied with the delay that has brought them so good a result, and, besides, there is very little in the volume that has suffered by the delay. It is seldom, indeed, that a volume of more permanent value than this has been issued by the society.

ESSAY ON ROSES.—An essay on roses, read before the Maine Beneficial Society at its March meeting by our correspondent, Mrs. M. D. Wellcome, of Yarmouth, Maine, is to be issued in a tastefully bound form at fifteen cents per copy. We have had many treatises on roses. It will be interesting to have now a lady's view of the subject.

THE VEGETATION OF THE ROCKY MOUNTAIN REGION.—By Asa Gray and Sir Joseph Hooker. From the Bulletin of the United States Survey of the Territories, Vol. VI., No. 1. These distinguished botanists, to whom the world already owes so much, have in this laborious work again made us all their debtors. The geography of plants is a very fascinating department of natural history. This shows the range of the Rocky Mountain plants in comparison with that of other parts of the world, and is replete with interesting facts in connection with this study. A large number of plants are peculiar to the Rocky Mountain region.

HENDERSON'S HAND-BOOK OF PLANTS.—New York: Published by Peter Henderson & Co. In preparing this work Mr. Henderson has added largely to the gratitude American horticulturists already owe him. It is somewhat on the plan of Paxton's and Johnson's dictionaries, with the explanatory style of Lindley & Moore's Treasury of Botany. It is, in fact, a brief but intelligent history of plants from an American standpoint, the plants described being such as an American is likely to come across, either in his readings or daily experience. It will be a standard book of reference for many years to come.

OUR NATIVE FERNS.—By Dr. J. M. Underwood, Bloomington, Illinois. This little book has the merit of originality of treatment, and explains about ferns in so easy and simple a manner that

few will read without knowing more than they did before, and without any great mental effort. It describes all the species of the United States, which at present we may place in round numbers at one hundred and fifty. There is no other work which has all the ferns of the United States described in one volume. A singular error is a chapter on "Morphology of Ferns." It should have been Organography. The morphology of ferns is not touched on in the volume.

THE GYMNOSPORANGIA, OR CEDAR APPLES OF THE UNITED STATES.—By Prof. W. G. Farlow. Published by the Boston Society of Natural History.

We are interested in botany for various reasons, but the hoticulturist before any other class is interested in the progress of mycology, or that department of botany which deals with mildews or moulds, or perhaps as many will understand mere "blights." Unfortunately these little plants require microscopes of high power, as well as experience in their use, in order to investigate properly; and, in addition, a persevering study of the very highest character in order to understand what the microscope reveals. The average horticulturist has not the opportunity for this; and thus the very class above all interested are practically shut out from getting knowledge of their own on a subject of the most vital importance to that class. Those, however, who have been able to get a little insight into this curious study, find so much that is truly wonderful as to become enraptured with it, and do not wonder that those who know nothing speak of them in horticultural meetings as "fungi-mad," when they show how so many of the diseases of plants, hitherto supposed to be mysterious, are to be referred in the first place to the growth of these invisible organisms. Indeed, those of us who have endeavored to follow in the track of this branch of science, are often astounded at what we are compelled to learn. When Oersted, the Danish botanist, told us that wheat rust and berberry rust were really forms of the same thing, we felt a little sore to think that we had been for so many years laughing at the "ignorant" farmer, because he had found by mere observation that the berberry always rusted when it grew near rusted wheat, and he was sure it must be the same thing. It is in this direction we are still going, and Professor Farlow is here driving us along in the same road. Last year, when we called attention to the "yellow apple trees" of New Jersey, and said it must be from a species of Roestelia, Professor Buckhout explained in our pages that this fungus which so completely spotted the leaves with yellow, was only another form of the common cedar apple, well known for bursting out into yellow gelatinous threads after a shower of rain. Prof. Farlow here furnishes the evidence of this, but extends the knowledge so as to include an immense number of genera and species of parasite fungi. They are all mere forms of one and the same thing. Into the few genera and species they really belong, is the task undertaken here to place.

Of course we are met here by the same old story, what is the use of all this minute study to the practical man. And we have still only the same answer, we do not know. No doubt the dull Spaniards asked of Columbus what good it did to wander along the sea coast and pick up the drift-wood and "sea-beans" which the Gulf streams cast upon the Spanish shore. He did not know, and he could not help their laughing at his waste of such precious time. But we who are now enjoying the manifold blessings of the new world, know now what neither he nor they knew then, and say to all such students, prosper on. We may not now know just how such a mass of laboriously gained knowledge as is here given us by Prof. Farlow will benefit mankind any more than the old folks knew that Columbus' studies in drift-wood would end in the discoveries of a continent; but the benefit will all show itself in time, and the horticulturist especially will be among the first to get the benefit of Prof. Farlow's patient work.

ILLUSTRATED SCIENTIFIC NEWS.—This is a new venture from the press of the *Scientific American*, and will no doubt be as useful as that very popular weekly. An extremely interesting paper to our readers would be one on icebergs, which No. 3—the one before us—contains. The circulation of hot water, of air in greenhouses, atmospheric and other questions bearing on gardening operations, are all of a kindred to the formation and distribution of icebergs.

DAIRY FARMING.—Cassell, Petter & Galpin. Part 21, before us, has a portrait of Jesse Williams, the "father of cheese factories," with an interesting sketch of his life.

SCRAPS AND QUERIES.

THE PREACHER ON TRANSPLANTING.—M., Pittsburg, Pa., says: "I have always thought that the Preacher (see Forestry in March number)

propagated his trees by cuttings, and had to apply water until they were rooted and established."

BAD LETTER ADDRESSES.—L. C. L, Nashville, Tenn., under cover of an envelope, endorsed "814 Chestnut Street, Philadelphia," and to to which he adds, with ironical care, the word "Pennsylvania," spelled out in full, says: "A letter directed Philadelphia, as you have it on your title page, would not leave this office unless 'Pa.' was added. If you said anything about it, they would ask what Philadelphia—in Tennessee, or some other State?"

[And L. C. L. is quite right. There are Philadelphias in numerous States, and it ought to be no part of a postmaster's duties to guess a writer's meaning, when he can easily write his wants. One of the "crying" evils of the time, is the carelessness of writing many people get into. In our personal experience we often come near "crying" over some of the letters we have to read, and it is no uncommon occurrence, that, in despair, we cut out the writer's address and paste it on the letters, trusting to the postmaster in the town to be better able than we are to guess out the writer's name.—Ed. G. M]

SPADE AND PLOW.—J. S. L.: We puzzled over your letter some ten minutes, but found it impossible to make out the words by the handwriting so as to make any sense out of it, so very reluctantly, it went into the waste basket. We say reluctantly, for, though we do not want to devote any more space to this question to the exclusion of other matters, we should have been glad to give the pith of the letter in a brief paragraph, if we had been able to read it at all. If you write plainer next time you may have better luck.

HORTICULTURAL SOCIETIES.

AMERICAN POMOLOGICAL SOCIETY.—The Massachusetts Horticultural Society having invited the American Pomological Society to hold its next meeting at Boston, the Eighteenth Session will be held in that city, commencing Wednesday, September 14, 1881, at 10 o'clock, A. M, and continuing for three days.

This session will take place at the time of the Annual Exhibition of the Massachusetts Horticultural Society.

All Horticultural, Pomological, Agricultural, and other kindred Associations in the United States and British Provinces, are invited to send delegations as large as they may deem expedient; and all persons interested in the cultivation of fruits are invited to be present, and take seats in the convention.

This session will be held at the home of its President, where, after an interval of years, occasioned by ill health and a serious accident, he hopes to have the pleasure of meeting, not only his old friends, but others from the various sections of our country, and again to unite heart and hand with friends for the promotion of the objects of the Society.

Arrangements will be made with hotels, and, as far as possible, with the various railroad lines terminating in Boston, for a reduction of fare. Wherever possible, it would be best that such arrangements should be made by the various delegations with roads in their localities, as rates made by Boston roads will apply only to their lines.

Members, delegates, and societies are requested to contribute specimens of the fruits of their respective districts, and to communicate in regard to them whatever may aid in promoting the objects of the society and the science of American Pomology. The sense of the last meeting of the society was that the exhibition of large collections of fruit is not desirable, but that the show of fruits should be confined mainly to new or rare varieties and remarkable specimens, or such as being peculiar to any locality, or any other reason, possess special interest. Intending contributors—whether as states, societies, or individuals,—will oblige by giving us as far as possible, and at an early date, the quantity they propose to exhibit. Three specimens of a variety will be sufficient, except fruits of special interest. Each contributor requested to prepare a complete list of his fruits that a report of all varieties entered may be submitted to the meeting as early as practicable. A limited number of Wilder medals will be awarded to objects of special merit.

Packages of fruits, with the names of the contributors, may be addressed as follows: "American Pomological Society, Boston, care of Massachusetts Horticultural Society." Freight and express charges should be prepaid.

All persons desirous of becoming members can remit the fee to E. W. Buswell, Treasurer, Boston, Mass. Life-membership, twenty dollars. Biennial, four dollars. Life members will be supplied with back numbers of the proceedings of the society as far as possible. Col. Marshall P. Wilder, Boston, Mass., is President, and Robert Manning, Secretary, Salem, Mass.

The following named gentlemen will prepare papers, or make addresses:

Dr. John A. Warder, Hon. P. J. Berckmans, Professor Thomas Meehan, Professor W. J. Beal, Professor George Husmann, Hon. George W. Campbell, Josiah Hoopes, P. T. Quinn, and W. C. Barry.

HENDERSON'S HAND-BOOK of PLANTS

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In offering to florists, gardeners, and amateurs interested in horticulture, the **Hand-book of Plants**, we do so in the belief that it will, to some extent, fill a want that has long been felt by thousands in this country—the want of a concise yet comprehensive dictionary of plants.

As a book of reference, it is believed it will take the place, for all practical purposes, of the expensive and voluminous European works of this kind; and as it has been written with a special view to the wants of the climate of the United States, both in matters of propagation and culture, it will, in these important particulars, we think, be found much more valuable than any European work of this class.

Instructions for the culture of many important plants, such as the Rose, have been given at length, and these articles, as in all the Author's previous writings on horticultural subjects, are a plain relation of the methods in use in our own extensive business.

The scope of the work embraces the botanical name, derivation, and the Linnæan and natural orders of all the leading genera of ornamental or useful plants up to the present time, together with all important species and varieties, with brief instructions for propagating and culture.

A valuable feature of the book, particularly to amateurs, is the great care that has been given to obtaining all known local or common names; and as the arrangement of the book is alphabetical, any plant wanted can be thus quickly referred to under either its scientific or common name. An Index is also added, where important plants or modes of culture can be referred to at once.

A comprehensive glossary of botanical and technical terms, together with general horticultural terms and practices, is also given, which will be found of great value even to the experienced horticulturist.

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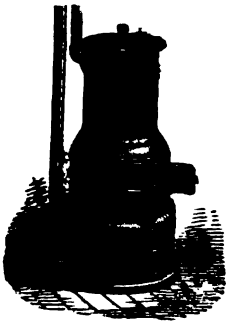
to **ROSE GROWERS,** West Grove, Chester Co., Pa.

GREENHOUSE HEATING

AND

Ventilating Apparatus.



Wash-Burning Water Heater.
Three sizes. Patented, 1873.

HITCHINGS & CO.,

[Established, 1844.]

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NEAR BLEECKER STREET,

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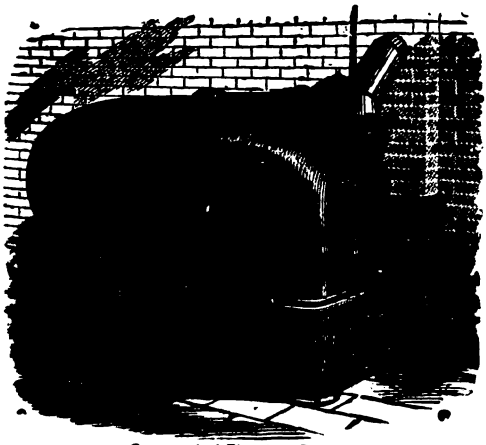


Corrugated Fire-box Boiler.
Five sizes. Patented, 1867. New Patterns, 1873

Four Patterns of Boilers,

EIGHTEEN SIZES.

ALSO,

HEATING PIPES,

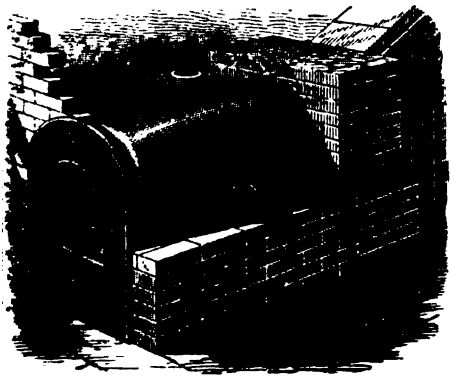
EXPANSION TANKS,

STOP-VALVES AND

PIPE FITTINGS,

IN GREAT VARIETY AND AT

LOW PRICES.



Improved Saddle Boiler.
Five sizes. New Patterns, 1877.

IMPROVED

Sash-Raising Apparatus,

LIFTING-RODS FOR SASHES,

ETC., ETC.

Send 6 Cents Postage for Illustrated Catalogue with References and Prices.

H. M. BAYERSDORFER & CO.

Prize Medal of Cincinnati Industrial Exposition of 1878; Medal and Diploma of International Exposition of 1877, "For best display of Bouquet Papers."

We beg to call the attention of the WHOLESALE and RETAIL TRADE to **FLORISTS' GOODS** to our well assorted stock for the Fall season:

BOUQUET PAPERS (ITALIENS), PASTED CARTONS,

Plain White Edges, Gold and Silver Edges, White Satin for Bridal Bouquets, Fancy Lace Paper for Weddings, Receptions and Parties.

IMMORTELLES—ORIGINAL BUNCHES.

White and all Colors.

DRIED GRASSES AND FLOWERS,

In great varieties and styles; very suitable for ornamental purposes.

ORNAMENTAL GRASS BOUQUETS.

FRENCH AND GERMAN GREEN MOSS.

TIN FOIL—Best in the Market.

M. M. BAYERSDORFER & CO.,

IMPORTERS OF FLORISTS' MATERIALS,

50 NORTH FOURTH STREET.

PHILADELPHIA, PA.

Also Importers of Fancy **WILLOW** and **MOSS BASKETS**, and Manufacturers of Fancy **STRAW, BROWN VARNISHED WILLOW**, and **WHITE** and **GILT BASKETS.**

Send Orders early in Fall. Illustrated Catalogue gratis on application.

THE AMERICAN

Steamship Company of Philadelphia. Philadelphia and Liverpool Line. The only Trans-Atlantic line sailing under the **American Flag.** Sailing every Thursday from Philadelphia, and Wednesday from Liverpool.

THE RED STAR LINE,

Carrying the Belgian and United States Mails. Sailing every **ten days,** alternately from Philadelphia and New York. Direct and only

TO ANTWERP.

Landing passengers within a few hours' ride of the important points of interest on the Continent.

The American and Red Star Lines being under one management, Excursion tickets are good to return by either, thus saving the expense and annoyance of re-crossing the Channel.

For rates of passage and general information apply to

apl6f **PETER WRIGHT & SONS, Phila. Gen'l Agents.**

WILBOR'S COMPOUND OF

PURE COD LIVER OIL AND LIME.

Wilbor's Cod-Liver Oil and Lime.—The great popularity of this safe and efficacious preparation is alone attributable to its intrinsic worth. In the cure of Coughs, Colds, Asthma, Bronchitis, Whooping Cough, Scrofulous Humors, and all Consumptive Symptoms, it has no superior, if equal. Let no one neglect the early symptoms of disease, when an agent is at hand which will cure all complaints of the Chest, Lungs, or Throat Manufactured only by A. B. WILBOR, Chemist, Boston. Sold by all druggists. mh.3-

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The largest stock of first-class vines in the country. All perfectly healthy and of fine size. None but the most popular and thoroughly tested varieties grown. Both one and two years old vines supplied at the lowest rates. Prices on application. Very liberal terms to the trade.

HOOPES, BRO. & THOMAS,

apr 6 **CHERRY HILL NURSERIES,**

WEST CHESTER, PA.

NEW CENTAUREA GYMNOCARPA PLUMOSA.

The Finest Centaurea out. It is of a Dwarf, Compact variety, very fine cut and white foliage. We have tried it for about four years. The leading Florists around Boston say it is the best Centaurea they ever saw. Price 30 cents each, $2 50 per dozen.

New Carnations, New Geraniums, New Coleus.

Send for Wholesale List.

WM. A. BOCK,

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WALTER ELDER,

Landscape and Jobbing Gardener,

1231 Rodman Street, Philadelphia,

Attends to all branches of his business on reasonable terms.

edal and Diploma awarded by the U. S. Centen-
Commission, 1876, also Gold Medal and Diploma
arded at the Exhibition of the Massachusetts
ritable Mechanic Association, held in Boston,
3, to

MITH & LYNCH,

Manufacturers of Patent Improved

PORTABLE CELLULAR FIRE BOX RETURN FLUE BOILER

AND

PATENT PORTABLE CELLULAR FIRE BOX

BASE BURNER BOILER,

FOR HEATING

Greenhouses, Graperies, Conservatories, Propagating Houses, Forcing Pits, Public and Private Buildings, Schools, Drying Rooms, and Heating Water for Baths.

ALSO KEEP CONSTANTLY ON HAND

Expansion Tanks ,Evaporating Pans, Stop Valves, Cast-Iron Pipe, Elbows, Tees, Branches, Pipe Chairs and everything necessary, of the best material, for Greenhouse Heating.

Smith & Lynch's Improved Ventilating Apparatus, for opening and closing Ventilating Sash, on roof or sides of Greenhouses and Graperies.

Judges' Report on awards, with descriptive illustrated circular containing testimonials and reference. Also price list furnished on application to

SMITH & LYNCH,

86 BEVERLY STREET,

feb.1 **BOSTON MASS.**

MARSCHUETZ & BACHARACH,

25 NORTH FOURTH STREET, Philadelphia, Pa.,

IMPORTERS OF AND WHOLESALE DEALERS IN

FLORISTS' SUPPLIES

SUCH AS

Bouquet Papers or Italiens, in great varieties of Styles and Patterns. **Pasted Cartons,** in all sizes.

IMMORTELLES.

Dried Grasses and Flowers, suitable for Decorations. **Ornamental Bouquets,** for Vases.

French Green Mosses, Baskets, Wire Designs, Tin Foil. L&B

Our connection with European Houses enables us to sell goods at lowest figures. Orders will receive careful attention and prompt shipment. A. Riemschneider's (Brandenburg-on-Havel), Wholesale Catalogue of Roses and Bulbs, mailed free on application to us.

ALEX. NIMMO,

(Late of the Firm of Nimmo and Scolley.)

PATENT IMPROVED HOT WATER BOILERS

For Heating Green-Houses, Graperies, Conservatories, F[illegible]cing Pits, Water for Baths, Drying Rooms, Public and Private Buildings, &c.

All the Necessary Fittings for Hot Water Heating Appara

VENTILATION APPARATUS OF ALL KINDS.

PRIZE MEDAL AND DIPLOMA AWARDED THIS BOI[illegible] AT THE CENTENNIAL EXHIBITION.

☞Please send for circular for explanation, etc., before you make up mind to purchase elsewhere.

sep.tf **1204 Degraw Street, near Nostrand Ave., Brooklyn, N. Y.**

FLOWER POTS

We have on hand for the Spring trade, a large stock of smooth, well-burned, Greenhouse Pots. For Price List and Catalogue, address the manufacturers, **ELVERSON, SHERWOOD & CO., NEW BRIGHTON, PA.**

BEDDING PLANTS.

We offer strong, healthy plants at the following low prices per hundred.

		2½ in. pots.	4 in. pots.
Achyranthus,	five sorts,	$4 00	$7 00
Alternanthera,	three sorts,	5 00	
Ageratum, John Douglas and Blanche,		5 00	
Cineraria Maritima,		4 00	
Centaurea Candidissima Gymnocarpa and Clementii,		4 00	
Coleus, general collection,		3 00	
" Dreer's best new sorts,		4 00	
Fuchsias, 20 best varieties,		4 00	7 00
Geraniums, double, 20 best sorts,		5 00	8 00
" Zonale, 30 "		5 00	8 00
" Rose, Happy Thought, " Distinction & Mountain Snow,		6 00	10 00

	2½ in pots.	4 in. pots.
Heliotrope, 10 best sorts,	$4 00	$7 00
Lobelia, in variety,	4 00	
Mesembryanthemum cord. var.,	7 00	
Pyrethrum, Golden Gem and Double White,	4 00	
Roses, Hybrid Perpetual and Ever-blooming standard sorts from 3½ in. pots		12 00
Salvia Splendens,	4 00	
Verbenas,	2 50	
Pansies	2 50	
Hanging Basket Plants in large variety,	3 00	

Sample plants from 2½ inch pots of any or all varieties, will be sent by mail on receipt of price, postage paid. Goods packed and delivered at depot free.

W. B. & W. M. TABER, Wholesale Plant Growers and Florists, Detroit, Mich.

$66 A WEEK in your own town. Terms and $5 outfit free. Address H. HALLETT & Co., Portland, Maine.

50 All Gold, Chromo and Lithograph Cards, (No 2 Alike) Name On, 10 cents. CLINTON BROS., Clintonville, Conn.

SWAIN'S IMPROVED PATENT

HOT WATER APPARATUS

For Heating GREENHOUSES,
Hot Houses, Conservatories,
Public and Private Buildings, &c.

Thomas J. Myers, Jr., having purchased the Patent of the late THOS. J. MYERS, we are prepared to furnish all the sizes of BOILERS manufactured by the late Firm of THOS. J. MYERS & SON. We are making these BOILERS with GREATLY INCREASED STRENGTH AND DURABILITY. Send for ILLUSTRATED CIRCULAR AND PRICE LIST.

THOS. J. MYERS,
Manager.

R. A. SWAIN,
1173 South 9th St., Phila.

ROSES! GERANIUMS! VERBENAS!

FUCHSIAS! COLEUS! PETUNIAS!

LEMON VERBENAS! LANTANAS!

ECHEVERIA! ETC., ETC.,

A FULL GENERAL STOCK IN FINE CONDITION

SMILAX, and CUT BLOOMS of ROSES, CARNATIONS, CAMELLIAS, ROMAN HYACINTHS, BOUVARDIA, HELIOTROPES, VIOLETS, POINSETTIA, ETC.

FOR THE TRADE. WRITE FOR PRICE.

Wholesale list for January now ready. Mailed Free to the Trade on application.

W. L. SMITH, AURORA, ILL. jl2

Splendid New White Primula for 1881.

THE BEST EVER SENT OUT.

WILLIAMS' PRIMULA

Sinensis Fimbriata Alba Magnifica.

For description and opinions of the PRESS, TESTIMONIALS, &c., see

B. S. WILLIAMS' Seed Catalogue for 1881.

Post free to the United States.

THE NEW PRIMULA SEED is put up in packets bearing my TRADE MARK, without which none are genuine. Price $1.25.

Price to the trade upon application.

B. S. WILLIAMS,

Seed Merchant and Nurseryman,

Upper Holloway, London, England. b

BUSINESS DIRECTORY.

☞ Send for Circular and conditions of insertion under this heading. ☜

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GEO. L. MILLER, Fruit, Farm and Nurseries, Jones' Station, Ohio.

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Splendid New Pelargonium, Maddon's Victor.

The finest ever offerd to the trade. Compact Grower, Dark Green Foliage, Upper Petals Dark Crimson, Lower Petals Light Crimson, one half a pure white centre. Free Flowerer, price, strong plants, $1.00 each, $9.00 per doz. Also Mrs. Ellener Buckle Bronze Geranium, is the best yet out, 30 cents each, $3.00 per doz. Verbenas in named or color fine stocked plants, $4.00 per 100, $35.00 per 1000 Cannas in varieties, $10.00 per 100 strong roots. Caladium Esculentum fine Bulbs, $12 00 per 100. A complete stock of Bedding plants in fine order at lower rates. John White's Mealy Bug Exterminator, the only known remedy to kill the Mealy Bug without injuring the plant, $1 00 per bottle, $9 00 per dozen. ja 12

JOHN WHITE, Communipaw Ave, Jersey City, N. J

$72 A WEEK. $12 a day at home easily made. Costly outfit free. Address True & Co., Augusta, Maine.

Tuberose Bulbs.

	Per 100	Per 1000
DOUBLE, Blooming Bulbs,	$1.50	$12.00
PEARL, " "	2 50	20.00

All our Bulbs guaranteed Pure. Sample to Dealers.

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ever issued, and is the recognized standard work all over the world on FLORISTS' FLOWERS All the best varieties and seeds in England transmitted regularly by mail to all parts of the globe from their

HOME FOR FLOWERS,

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We offer this Spring to the trade a large and well-selected stock of the leading and choice kinds all on their own roots in 2½ inch pots. Monthlies in 150 leading sorts, $6.00 per 100, $50 00 per 1000. Hybrids in 50 leading kinds, $8.00 per 100, $70.00 per 1000 New and scarce Everblooming Roses, including Perle de Lyon, Cornelia Cook, Niphetos, Dutchess of Edinburg, Perle des Jardins, Rosa Flora, Sov. de Maria Detrey, Coquette de Lyon, Catharine Mermet, $2 00 per doz., $6.00 per 100, $75.00 per 1000. Carnation Pinks in 25 leading and choice sorts from $5.00 to $8.00 per 100, $45 00 to $60.00 per 1000, according to kinds. Also Tuberose and Gladiolus bulbs, Bedding and Greenhouse Plants in endless variety. Trade List Free.

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OF FINE WORK IN

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RUSTIC WORK.

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Bulbs, Flower Seeds and Florists' Goods.

Send for my TRADE LIST,

my **JAMES KING,**
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Hardy Plants, Bulbs, Grasses, Shrubs, Climbers, Etc.

Our New Catalogue and Price-List for 1881 is now ready. It contains the largest and finest selection of the above plants, in the U. S. Many NOVELTIES, including

BULBS & PLANTS

which cannot be found elsewhere. Sent by mail to any part of the U. S. on receipt of price.

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BUGGIES for Dealers' Medium Work. Low Prices. UNION CARRIAGE M'F'G CO., Cincinnati, O. Catalogue FREE

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For MAY and JUNE PLANTING.

We do not claim to have the **largest stock in America**, nor even 500,000, but do claim as **high a grade** both in **quality and variety** as can be found anywhere.

Having a very large stock of both **HYBRID PERPETUAL and EVERBLOOMING ROSES**, we invite the attention of Nurserymen and Florists to our **April List**, giving full description of varieties and prices. Also, a full line of the **NEW ROSES for 1879 and 1880, now ready.**

Verbenas and General Greenhouse Stock in large quantities.

Send for List of Prices.

MILLER & HUNT,

Wright's Grove, CHICAGO, ILL.

ap 3

Special List of Plants

FOR APRIL AND MAY.

	Per Hundred
CARNATIONS, Pres. de Graw, Peerless, Edwardsii,	$3 00
CALLA, 4 inch pots, $8 00 per hundred, 3 inch pots, $4 00 per hundred, 2 inch pots,	3 00
COLEUS, an immense stock, consisting in part of **Multicola, Pictus, Firefly, Magic, Sunbeam, Marie Stuart, Quadricolor, Empress of India, Superbissima, Spotted Gem, Zebra**, and twenty other varieties fine plants,	3 50
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GERANIUMS, single and double, in variety,	4 00
HELIOTROPE, including "Snow Wreath,"	4 00
ROSE, "GENERAL JACQUEMINOT," fine plants, $6 00, $8 00	and 10 00
PANSIES, an elegant lot,	3 00

Also VIOLETS, STEVIA, TUBEROSES, SMILAX, CUPHEA, BEGONIAS, IVIES, GLADIOLUS, DAHLIAS, CHRYSANTHEMUMS, PELARGONIUMS, PÆONIES, LANTANAS,

IN LARGE QUANTITIES.

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TREE AND PLANT LABELS OF THE BEST QUALITY AND CHEAP.

EVERYTHING PACKED FREE.

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BATAVIA, KANE CO., ILLS.

feb 12

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One of the best of **ORCHIDS** for the **AMATEUR** or **FLORIST.** Is of such easy management and so abundant and sure a blooomer that it is rapidly becoming indispensable among **CHOICE WINTER BLOOMING PLANTS.** Its long clusters of **WHITE FLOWERS** remain in perfection for nearly 3 months upon the plant; and for weeks in vases, when cut. The subscribers offer large blooming bulbs of both the yellow and crimson eyed varieties at the unusually low rates of

Two Dollars each

Ten Dollars for 6

Sent by mail to any address on receipt of cash.

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ARE IN

GERMANTOWN,

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GORGAS LANE STATION or WALNUT LANE STATION,

Or slightly nearer by street cars to

UPPER CHURCH ST.

The Nurseries contain over one thousand kinds of Trees and Shrubs, besides Fruit Trees and Flowers. European, African or Asiatic orders for trees or tree seeds, receive careful attention, and usually give customers entire satisfaction.

100,000 VERBENAS,

PERFECTLY HEALTHY; FINE COLORS,

1st size ready to bloom,	$2 per 100	
2nd " 4 inches high,	$3	"
3rd Rooted Cuttings	$1	"

One of our Customers says: "Verbenas came all right, am much pleased with them. They are very fine plants."

F. WALKER & CO.,

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Orchids, Rare Plants, &c.

EAST INDIAN ORCHIDS.

ALSO

MEXICAN, CENTRAL

AND

SOUTH AMERICAN ORCHIDS!

I am importing constantly from those countries, and can offer much lower than the same can be purchased in Europe; and better plants.

Beautiful Foliage Plants. Viz, Crotons; Dracenas; Marantas; Dieffenbachias; Nepenthes; Alocasias, &c.

Suitable for FAIRS, EXHIBITIONS &c. at low rates.

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For $1.50 and learn how we were enabled to obtain over 15,000 lbs. of honey from 176 colonies, last season. Send for our illustrated circular describing best Hives, Extractors, Comb Foundation, Smokers, Feeders, Veils, Gloves, &c. Alsike Clover Seed a specialty.

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HALF A MILLION

SWEET POTATO PLANTS

Also Cabbage and Celery Plants in large supply

All Plants packed with extreme care.

Circular, with prices, free.

J. T. LOVETT, Little Silver, N. J.

EUREKA PAINT CO.'S ENGLISH ROOF PAINT, 50c. a gallon; House Paints, all shades, 50c. to $1 a gallon; Eureka Boiled Oil, 50c.; raw, 48c.; English Roofing Oil, 40c. Order color cards. Eureka Paint Co., 167 Maiden Lane, New York.

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Botanical Paper, Drying Paper, Gauze Covers and Mounting Paper. The only House in the country which carries a stock of the above materials. *Samples sent on application.* Send for our catalogue. Address, **GEORGE A. BATES,** Naturalist's Bureau, Salem, Mass. Please mention that you saw this advertisement in the *Gardener's Monthly.* t.ap.tf

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Cut Flowers and Florists' Supplies,

s 18 CATALOGUES ON APPLICATION.

Foreign Grape Vines for Graperies.

We now offer the **Finest collection** of **Foreign Grapes** grown in the country. They are all **Good, Strong, Healthy, Canes,** all true to name, and all in excellent **condition** for **shipping.** Below will be found list of varieties grown by us one and two years old.

Price, 1 year old, $1.00 each. 2 years old, $2,00 each.

Black Hamburg,	**Muscat of Alexandria,**
Muscat "	**Bowood Muscat,**
Victoria "	**Mrs. Prince's Black Muscat,**
Tripoli "	**Maderafield Court "**
Millhill "	**Royal Ascott,**
Popes "	**Black Alicant,**
Wilmots "	**Dutchess of Buccleuch,**
Gross Colman,	**Calabrian Raisin,**
Lady Dows Seedling,	**Buckland Sweetwater,**
Black Prince,	**White Syrean,**
Prince Albert,	**White Sweetwater,**
White Frontignac,	**Cannonhall Muscat,**
White Nice,	**Grizzly Frontignac,**
Santa Cruz,	**Chassel as de Fontainbleau,**
Golden Chasselas,	**White Chasselas,**
Trentham Black,	**Muscat Blanch Native,**
Black Frontinac,	**Frogmore St. Peters.**

We would also call special attention to our stock of Camelliasa Azalias, Dophneas Acacias, and a general collection of **Winter Blooming** and **Ornamental Fnliage Plants.** tapp

DAVID FERGUSSON & SONS, Laurel Hill Nurseries,
Ridge and Lehigh Aves., opp. Laurel Hill, Philadelphia, Pa.,

FOR SPRING PLANTING.

Single Specimens and Collections of the Finest Ornamental Trees, Shrubs and Roses offered in this country. Large importation of hardy Rhododendrons, Azaleas, Andromedas, Kalmias, New Japanese Maples and Azalea Mollis, selected from the best Nurseries abroad. Fine Fruits, Standards and dwarfs, including all the best new varieties, also Grapes and Small Fruits. Full Descriptive Catalogue, 10 cents, to customers free. Address, **FRED. W. KELSEY,**
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CARNATION FLORETS

IN

Large Numbers

Will be furnished by the undersigned the coming season.

THOMAS F. SEAL,
o.tf **Unionville, Chester Co., Pa.**

CARNATIONS.

All the leading varieties, Peter Henderson, La Purity, Peerless, De Graw, Astoria, Chas. Baltet, Darkness and others. $4.00 per 100, $35.00 per 1000, 250 at 100 rates.

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Illustrated. Devoted *exclusively* to Beet Culture for *sugar making.* The only journal in the United States giving full and accurate information on the subject. *Invaluable to every farmer.* Only **50 cents per year,** post-paid. Send for sample copy. AGENTS WANTED. **Henry Carey Baird & Co.,** Philadelphia, Publishers. Address, "THE SUGAR BEET," **810 Walnut Street, Philadelphia** je12

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FAITH WHITCOMB'S BALSAM.

CURES CONSUMPTION

After Tubercles have formed upon the Lungs.

GEORGE ELLIS, the veteran Crockery Importer, who lives in Charlestown, says: "My physician pronounced my wife to be in Consumption. She commenced the use of Faith Whitcomb's Balsam in October, and the effect was wonderful. It is the best lung remedy I ever knew, and I recommend it to every one inclined to that terrible disease, Consumption."

Composed of pure Shaker Herbs. $1.00 per Bottle—Six for $5.00.

FAITH WHITCOMB'S LINIMENT.

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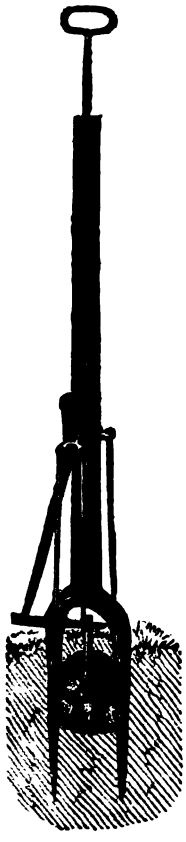

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⇢POCKLINGTON GRAPE.⇠

This is an exact copy of a photograph of a cluster weighing one pound, picked from a four-year-old vine, bearing 22 bunches, weighing in the aggregate 14 pounds; See page 8.

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Edited by THOMAS MEEHAN.

Vol. XXIII. JUNE, 1881. Number 270.

FLOWER GARDEN AND PLEASURE GROUND.

SEASONABLE HINTS.

If you would have nice evergreens, use the knife freely and yet judiciously. The strongest central shoots should be cut out where thickening is desired. If the tree be running up tall the leader may have the point pinched out. It will make a new bud, which will be a leader. If it is naked for many feet the top may be sawed off as low as desired, and a young side shoot tied up for a leader. Exact directions cannot be given here. Those who learn how, will make a thing of beauty out of an ugly stump. If an evergreen be yellow, and does not grow well, a surface dressing of manure helps it. The old idea was that evergreens despised manure,—a great error. After the young growth has become hard, evergreens may be transplanted from one part of the ground to another if immediate removal be desired. If growing in poor ground it is never absolutely safe to move an evergreen. Any tree from poor land has a struggle for life.

Deciduous trees, like evergreens, may be improved in appearance by the summer use of the knife; and so may deciduous shrubs.

Propagation by layering may be performed any time when strong, vigorous growing shoots can be had. Any plant can be propagated by layers. Many can be readily propagated no other way. Cut a notch on the upper side of the shoot—not below, as all the books recommend—and bend down into, and cover with rich soil. In a few weeks they root, and can be removed from their parent in the fall. Stakes for plants should be charred at the ends before using, when they will last for years.

When the tree gets a fair start, grass does less injury, and when it becomes a tough sod, and the tree, by its shade, or say by frequent mowings, keeps the grass short, the grass roots do not penetrate deep, and the sod is a benefit, by keeping the surface spongy, and the substratum cool.

Evergreen hedges will require attention as they grow. Where the height desired has been attained, the top and strong growth should be cut back while they are still watery. The side shoots should not be touched till past midsummer. All wise people now employ the conical shape for hedges. In cutting back the top growth at this season, the conical form can still be preserved.

Cut off the flowers of roses as they fade,—the second crop will be much better for the attention. Seeds of all flowering plants should be also taken off; all this assists the duration of the blooming season.

After the walks and lawns, the flower-beds should be a constant source of attention. If the plants appear to suffer by drouth, there is no better remedy than to place a fork around the plant and loosen up the soil deeply, without disturbing the plant more than can be avoided. After being thus loosened, it will not dry out

near as much as before. Above all, keep the surface continually broken by hoeing and raking fine. Nothing is so sure a preventive of soil-drying, as a loose, porous texture. But much of watering and hoeing will be saved if in hot places the flowers have tan or other mulching substances over the beds among the flowers.

COMMUNICATIONS.

DOUBLE CAROLINA JASMINE.

BY D. W. LANGDON, MOBILE, ALA.

I notice in your April number that you acknowledge receipt from Mr. P. J. Berckmans, of Augusta, Ga., of two flowers of a double Carolina jasmine, etc. I write to endorse all that Mr. B. says of it. "It is a really nice greenhouse plant, as it blooms very early and lasts a long time, besides it is as fragrant as a violet."

But it looked a little funny to "our folks" to see it spoken of as a novelty, in view of the fact that it has been on sale at the Langdon Nurseries and in our catalogues for ten years or more. Where the original plant came from neither my predecessor nor any one now connected with the establishment knows. The general impression is, however, that it was found growing wild in the woods near the nursery. It is as hardy as the old-fashioned or single Carolina jasmine (Gelseminum nitidum, sempervirens of Aiton), but is generally nearly through flowering before the single variety, which abounds in our woods, begins. Our main vine was until very recently a perfect mass of bright yellow flowers as fragrant as a violet and as double as a tuberose. You will see from my catalogue, page 54, that I class it among the hardy evergreen vines, and we have never had it under shelter, but I agree with you in the belief that in the latitude of Philadelphia, it would require some protection.

[This came to hand after the notice in our last was sent to press.—Ed. G. M]

FLOWER GARDEN ADORNMENTS.

BY N. F. F., WAVERLY, MD.

It can scarcely be doubted that some variation is needed in our style of flower garden adornments. Exactly what that need is does not seem so well understood; or it may be merely difference of opinion, variation of tastes, etc., which causes the seeming want of unanimity. One thinks we ought to go back to herbaceous plants considerably; another that the beds should be more mixed in the planting—we suppose somewhat after the manner in which we used to sow annuals in patches here and there through the herbaceous borders, etc., a quarter of a century since. The prime factor, however, very often in solving the problem as to what style of decoration it is better to follow, is, what means we have at command. There are many places where very little may be done in herbaceous planting, in the growing of hollyhocks, dahlias, &c., and yet it may be desirable to change the style somewhat. Would it not be well to introduce the carpet-bedding style and mosaiculture (is that a word?) in these places of limited room? In the latter style we may carry out the acute angles of any figure whatever, whilst the outline of the bed or beds—here I would say do not attempt too much—may be circular or oval. Of course I wish it understood that these remarks are not intended, and do not apply to those gardens laid out in a correct geometric design, but to places less pretentious, where there is usually a clump of beds or so, with here and there an individual bed to occupy space or for some other reason. It is these individual beds that may be made interesting, not by changing the shape of the bed but by working a design thereon. The form best adapted for this style of decoration is, in my opinion, circular or parallelogram, with the acute angles just rounded off. The designs which may be worked out upon the above forms are almost innumerable. To those who have not had experience in this style of planting, it might not be out of place to offer a suggestion. Suppose a circular bed, and raise a figure of a Maltese cross upon it about four inches above the level. For this purpose, however, it is well to make the outer ends of the cross narrower than usual. Plant in the centre a nice little agave, and around it Echeveria metallica; then plant the entire cross with E. secunda glauca. To plant the spaces between the cross run a line through the centre of each space with a taller growing alternanthera, as bicolor, filling in the angular spaces with the different varieties of the same, being careful of course to keep them properly balanced by planting the same variety in opposite angles. Edge with Pyrethrum aureum. This is a very simple arrangement, easily kept in shape, looks well, and is generally satisfactory.

CLIMBING ROSES.

BY JEAN SISLEY, LYONS, FRANCE.

Some time ago a discussion took place in my neighborhood between some horticulturists, about the merits of the new varieties of roses sent out since two or three years, and amongst them some advertised as climbing roses, when one of the party exclaimed: "But there are no climbing roses." A very judicious remark in my opinion; because, what constitutes the quality of climbing? The natural faculty possessed by some plants, like the ivy, ipomeas, melons, lagenanias, etc., to take hold of trees, walls or any other object, and cling to them by the special organs of which nature has endowed them for that purpose; while no roses possess them, and not any of them would be able to rise against a tree, or a wall, or a trellis if it were not fixed to it by the hand of man.

All vegetables to which nature has given the faculty of climbing have the tendency, if placed in an open space, on one side of which are either a wall, a trellis or trees, to direct themselves towards them, and creep on the soil instinctively in that direction, leaving behind the open space; while roses, if planted against a wall, or a tree, or even on the border of a planted spot, will lean in an opposite direction in search of air, space and light. This is incontestable for all those who have observed and studied nature's laws.

I maintain, therefore, that the term climbing is improper, and that a more appropriate one must be applied to such varieties of roses which have, like the multiflora, the tendency to emit long, slender and flexible shoots.

My ignorance obliges me to leave the research of the proper term to some one more competent. In French we have the word sarmenteux, which is correct, but which does not exist in English.

[Referring to the above, Mr. H. B. Ellwanger very well remarks: "He is quite correct, so far as the error in name is concerned, but a name is not always easily changed, and the best we could do in such a case would be to couple it with an alternative, as climbing or sarmentose roses, or else climbing or running roses. The term hybrid perpetual is a misnomer, but the continued usage thereof makes an entire change well nigh impossible. Many nurserymen in their catalogues use the terms hybrid remontant or hybrid perpetual roses. Although remontant is a word of French usage, it accurately defines the class as that which blooms the second time, or more than once, in contradistinction to those which are ever-blooming. We have no English word which does this.

The French call our climbing roses by the word *sarmenteux*, for which we have an English equivalent, viz., sarmentose. It would be well to couple this, as above mentioned, in catalogues, works on roses, etc."]

SOME NEW ROSES.

BY ANTOINE WINTZER, WEST GROVE, PA.

Anna Marie Montraval (Rosa polyantha Perpetual).—I received the first stock plants of this variety in the latter part of December, 1879; it will no doubt become a very popular rose. The habit of the plant is dwarf, and it is one of the most continuous bloomers in the whole rose family. The flowers are small, double, pure white, produced in immense clusters, and are very fragrant. The young plants commence to bloom shortly after they are rooted, and continue in bloom the whole season. I left a plant outside last fall without any protection, and on examination a few days ago found it had survived the winter, so it will probably prove hardy in the Middle States.

Rose Mad. Oswald de Kerchove (a new French Hybrid Perpetual).—It blooms almost as freely as a tea rose, is one of the most distinct roses we have; flowers white, sometimes tinged with blush and salmon, medium size, produces its flowers in clusters of three or five. This rose is as fragrant as La France, and is a constant bloomer. The plant has a beautiful habit of growth, and its foliage is very distinct from other roses; a fine novelty.

Rose Pierre Guillot (a new French Hybrid Tea).—Flowers large, very double, opens finely; color clear red, sometimes veined with white, fragrant, a free and constant bloomer; will prove a fine rose for massing.

Mad. Etienne Levet (a French Hybrid Tea).—It has been issued several years, but is still scarce. Color deep red, very clear, as double as General Jacqueminot, and with good culture will produce as fine buds. It is a constant bloomer, but the plant is rather a slow grower, although it is improving in that respect every year.

Rose Mad. Leaben Sels.—This is another new French Hybrid Tea. Color clear pink, produces large and beautiful buds; a free bloomer.

There are several other new French hybrid

tea roses which I may describe at some future time. I would give you a description and our experience with Bennett's New English Hybrid Teas, but have not space enough in this to do them justice, as I consider them the finest new roses we have. They have all bloomed for us several times.

[The information offered by our correspondent would be very acceptable to our readers. We would suggest to our many correspondents the importance of writing personal names very plain, as it is impossible for proof-readers or editors to guess at the orthography of these as they can generally do, and have to do with words in common use. In trying to correct they can only go by familiar names. For instance, the name of Cels is a very familiar name to a rose lover. It fortunately happens that Mr. Wintzer has very plainly written this new rose, Madame Leaben Sels. If there had been any occasion for guessing at what the handwriting meant, it would have been made "Cels," and thereby brought the proof-reader into trouble. Proper names should especially always be plainly and accurately written —Ed. G. M.]

GARDEN SCIONS.

BY CANTAB, BOSTON, MASS.

VII.

Senecio pulched.—A somewhat new and very fine species, with large purple flowers, is likely to be one of our foremost hardy herbaceous perennials. I am not sure that it is quite hardy out of doors, but it winters all right in a cold frame. It is sometimes fickle in behavior, and cannot be coaxed to grow well, and at other times it grows as freely as a squaw weed and blooms as copiously and continuously as a feverfew. It ripens seed very sparingly, and the seeds are chaffy, but from a shilling packet, containing eleven seeds, I have got six nice plants. In the winter time the old plants sometimes loose their crowns, but in spring break forth afresh from the fleshy roots that still survive, as in the case of Acanthuses.

For September flowers, let us not forget the Japanese Anemones, purple and white They are the best of all the Anemones, keep in bloom till October, and are perfectly hardy.

Sedum spectabile is another Japanese plant, and one of the gayest of our hardy herbaceous ones for August and September. Its color is pale rose.

Clematis graveolens is a yellow-flowering species from the Himalayan Mountains, quite hardy and a long running vine. Although it blossoms scatteringly during the midsummer it is not till August and September that it becomes so thickly floriferous. Then in a few weeks the flowers are succeeded by flossy tailed akenes that completely eclipse those of our wild Virgin's Bower, and for winter bouquets of dried grasses, picture festoons or wreaths, are quite desirable.

HORTICULTURE IN PITTSBURGH.

BY EDWARD L. KOETHENS, PITTSBURGH, PA.

An editorial letter that appeared in the February number of your excellent journal of this year, suggested that a few words on the state of advancement in horticulture in and around the Iron City might be interesting to many of your readers. The letter referred to, merely touched the subject. The horticulturist in this city has much to contend with, from the impure atmosphere, a thing that can readily be understood by those who have visited this city. One of the most prominent effects of this, is the exclusion of all evergreens in the localities where the smoke is most prevalent, and even in the remoter districts, these are confined to a few hardier varieties. Among the most notable features of horticulture in the vicinity are the Allegheny Parks, located in the heart of that city. They were originally used as commons, or cow pasture, but in later years have been improved and are now enjoyable parks. We are glad to note a marked improvement in the appearance of these grounds lately, and last summer the bedding was really very fine. The greenhouses belonging to the city, being rather limited in capacity, the work has not been as elaborate as it would have been, had there been more material to work with. Indeed it is astonishing how much the little glass which is there has been made to do. There was one piece of carpet bedding which was particularly noticeable. It was a square frame around a design combining a maltese cross, an elephant and a camel. The idea was well carried out, but the animals were naturally but clumsy representations, at best, and were not likely to encourage imitation; but as the bed was located in the children's playground, the idea was perhaps commendable as an amusement for them. There were several other beds which were probably as near perfect both in design and execution as they could be made with the present knowledge, and in so murky an atmosphere. Con-

nected with the greenhouse is a show-house, which is well stocked with a fine collection of rare ornamental plants, all showing evidence of the care bestowed upon them. In short, Mr. Hamilton, the superintendent, and Mr. Herron, the head gardener, deserve great credit for the marked improvement which they have inaugurated. In the neighborhood are to be found a number of well-to-do florists, who in point of variety of stock and quality of plants grown by them compare very favorably with eastern firms. But the atmosphere is too dull for them to succeed as well with winter-blooming plants as other florists, at least they have not until now done so, although they are persistent in the effort and may succeed yet. These florists grow all the plants of recent introduction, worthy of cultivation. Private greenhouses are also numerous, and some have fine collections of the finer class of plants.

One gentleman (Mr. Charles Clark) is the happy possessor of a fine specimen of Seaforthia elegans, fully twenty feet in height, also a large Philodendron, which has been fruiting freely during the last three years. Indeed, as you leave the heart of the city and get out among the suburbs, you find a refined taste displayed in all the gardens surrounding the houses, both large and small, and much attention is paid to planting handsome trees and shrubs, though there is a sameness about it which the nurserymen find it hard to break up. The lawns are kept neatly shorn and carpet bedding and other more desirable styles of gardening are quite universal; showing a steady increase in the taste for such things. The cut flower trade in the cities is extensive and plant decorations for festive occasions are popular.

Pittsburg has also an attractive cemetery within its limits, "The Allegheny Cemetery" of which our people are very proud. The choice of the site was a fortunate one in the first place, as it has many natural advantages in the shape of running water, gentle slopes thickly wooded and steep banks with rocky projections, so that with but little expense it was made very attractive leaving but little for the art of the landscape gardener. The cemetery is also supplied with a well equipped set of hothouses, which furnish the grounds near the main gate with bedding plants sufficient to make a brilliant display. At one point in the grounds has been formed a beautiful sheet of water, and from other parts fine views can be had of the surrounding country, including the Allegheny river and its banks.

EDITORIAL NOTES.

FALL GRASS ON LAWNS.—Under our eye for some years has been a lawn on which at least half the space was covered by the unwelcome fall grass—Paspalum sanguinale. By the advice of the writer, attention was given to encouraging the growth of the evergreen grasses, chiefly the "blue grass," Poa pratensis. The lawn had an occasional top dressing of guano, or of other fertilizers that had no seeds of weeds in them, and the lawn mower was never allowed to cut nearer then half an inch of the ground. It is interesting to note how nearly the enemy has been crowded out. This season patches a few feet over only remain to it, and this though no blue grass seed was sown among the fall grass as recommended.

FORSYTHIA SUSPENSA.—Though this pretty shrub has been many years in our gardens, its merits are not well known. It is in every way a finer plant than its neighbor Forsythia viridissima, the well known Golden Bell. It is much more graceful in its habit of growth, grows to double the size, and has larger and showier flowers. It is really much more of a "Golden Bell" than the original as so named by the late A. J. Downing, but as the other has the right of priority to the name, it is hard to take it from it. Perhaps those who prefer these distracting names might like to have the old one known as the stiff Golden Bell, and the newer one as the slender Golden Bell. If, however, we shall get a stiffer or slenderer form than these from Asia at any time it may lead to confusion again.

COTONEASTERS.—These beautiful shrubs nearly evergreen, and producing lovely holly-like berries in autumn, have proved perfectly hardy near Philadelphia the past season, not even the tips though exposed above the snow line, were injured.

RHUS AROMATICA.—Among pretty early flowering shrubs, this deserves a prominent place. It flowers with the spice bush, and Golden Bell, and though not quite so gay as the latter, is yet a showy plant. Its succeeding berries make the plant a pretty bush in summer. Though a Rhus, it does not belong to the venomous section.

EARLY LILACS.—It is remarkable how soon lazy nature catches up with her neglected work when she has a mind to. Near Philadelphia the lilac is the gauge of the season. Let the season be early or late, all is generally made up by the first of May. Rare indeed is it not to find a lilac in bloom by the first of May. This season, however, it was in default. On the fifth of May, however, the double purple lilac had a few flowers open. This was the first of the season. The old white, old purple, and many other varieties did not appear till some days after.

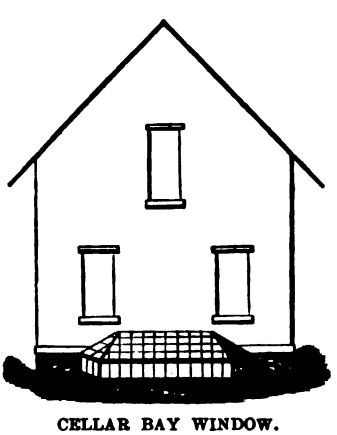
GREENHOUSE AND HOUSE GARDENING.

COMMUNICATIONS.

WINTER CULTURE OF PLANTS.

BY G. WRIGHT, ROCK FALLS, ILLS.

Please allow me to suggest to "M.," Lansing, Mich., that a night temperature of 50° to 60° is 15° too warm for Geraniums in winter, and that the fungus which blights the buds is probably the effect of heat and moisture. I have found my



CELLAR BAY WINDOW.

geraniums bloom best in a conservatory on the south of my dining-room, with no fire heat except from the dining-room stove, fifteen feet away. The pots near the floor would freeze if I did not drain the cold air into the cellar. I use four and five-inch pots, as near the glass as possible, and water every other day. When the plants have bloomed themselves nearly to death, I shake them out of the dirt, cut back if necessary, re-pot them in the same or one size larger pots, and put them in the moist, warm greenhouse for two or three weeks, when they will be ready again for the conservatory. Carnations will not do well in this conservatory, because the air is too dry, while the greenhouse is too warm and too wet, but I have a bay window in my cellar which just suits them. It is 8 by 12 feet, and about 2 feet deep from the surface before it is filled with soil. A row of winter-blooming stocks is planted next to the cellar, and they are now in their glory. Then come carnations and roses, in pots or planted in the soil. Deutzia, Astilbe, Hydrangea and various half hardy shrubs and plants which I keep in this way for spring planting. At one end I raised the bed as near the glass as I could, and planted a square yard of verbenas in the fall, and now I can take one hundred cuttings every ten days for the greenhouse. Along the brick wall which raises this end of the bed I put a row of Double Alyssum from the garden, and now it covers the wall with a mass of blossoms. Wherever I can find room I put a piece of three-inch drain tile on end, which makes a stand for a saucer of Pansies, Mignonette, Pinks, &c., from the seed, and a swinging bracket at each end, makes a good place for pots of Primroses. For the same amount of glass I have nothing that can compare with this cellar bay window in value. It cannot freeze, because the cold air flows into the cellar and settles to the bottom.

MUSLIN FOR GREENHOUSE SHADES.

BY JOS. J., PHILADELPHIA.

In reply to inquiry of R. L. B., of Des Moines, Iowa, I can say that I have tried all sorts of washes as applied to glass and find them all bad. For the last three years I have used a very thin unbleached muslin called cheese cloth, which I tack up on the inside of my houses against the rafters. It costs only five cents per yard, and is yard-wide. When it gets soiled I have it washed ready for next year.

NAPHTHA AND MILK FOR GREENHOUSE SHADE.

BY A. C. L., MADISON, INDIANA.

Some one asks what is best for shading a glass house. Mr. Henderson advises naphtha and white lead, mixed to the consistency of milk, and sprinkled on the roof with a syringe. Having tried the experiment, I am satisfied that a thin brush, about three inches wide, is better than a syringe. It is better to spatter it on the roof sidewise from the top of a step-ladder to prevent the material entering the laps and defacing the plants. Zinc would be more transparent than white lead, and I think would do as well.

HOW TO CONSTRUCT AND MANAGE A SMALL GREENHOUSE.

BY C. D., OHIO.

I have no doubt but that many who desire to have greenhouses, but are ignorant of their construction and cost, will bestow due thanks on C. D. Warde for the able assistance he offers them.

While agreeing with him on the whole, I cannot concur with him as to his representation being the best and most economical greenhouse to meet the wants of amateurs. Neither do I consider a plant house complete, nor economically built, unless it be provided with a supply of water, and that in such form that it can be warmed to the same temperature as the house before it is given to the plants.

For those wishing to grow plants on a small scale I would recommend a greenhouse of the following description: It should be span-roofed, say 15 by 25, with a centre-table 4 feet wide; side tables, 3 feet 10 inches; walk all round, 2 feet 8 inches. The centre-table should be built of brick, 2 feet 6 inches high, cemented inside to a depth of 1 foot 6 inches. This would form a tank for the surface water of the roof. A small pump at one end of the tank will complete the arrangement for a constant supply of water, which is a great consideration in the culture of plants.

A house of this description would cost a trifle more to erect, but the great advantage it contains for plant growing over the one figured by your correspondent would amply repay the extra outlay.

If C. D. W. has reference to an ordinary greenhouse, he is rather superfluous in names. Hot-house, conservatory and greenhouse, is somewhat confusing when applied to the same house.

BRASSIA AND BRASSAVOLA.

BY C. H. S.

An inquiry has been made as to the treatment of Brassia caudata, B. Gireoudiana and Brassavola glauca. The two Brassias, though coming from different countries, can be grown in the same way. I find all Brassias impatient under the long rest that appears to be so congenial to many orchids, such as Cattleyas, Lælias and many others. As soon as I find any Brassias commencing to grow, I put them in a warm place, and water them very freely, being careful not to let water lodge in the young growth, which rots off very easily. When they have made their growth, if placed near the glass and the plants are large enough they will bloom, as Brassias are very free bloomers, often making two spikes to a bulb. I find by looking at a list of the time of blooming that Brassias vary considerably. Grow Brassias in pots well drained. Brassavola glauca is easier to grow than to bloom. I find these do best on cork or cocoanut husk, the roots to be covered with moss. B. glauca coming from Mexico, is often placed as a cool orchid, but when it commences to grow in the spring I grow it in plenty of heat and moisture, so as to force strong growth, without which it will not make its large, beautiful flower, which comes in December, and lasts two months in bloom after it has bloomed. I then keep it quite cool and dry, as I do not want it to start into growth until May, at which time most Mexican orchids should be growing freely or starting. As I stated in a former article, Mexican orchids generally grow in a drier climate than most other orchids. Collectors should be particular in stating the altitudes and situation in which each species is found; also their time of growth and flowering in their own homes. It may be necessary in our greenhouses to alter somewhat the time of blooming, but as a general thing I try to bring each species into flower at the time it bloomed in its own country. A chapter might be written on the roots of orchids. Many such, as Ærides, Vandas, Cattleyas, Lælias, &c., have strong roots, that if not rotted off will last for years, and often have lateral roots break each year from the old ones, besides the new roots from the last formed growth. If these roots are lost, some species do not make new ones freely, and great caution should be taken that they are not de-

stroyed by insects or too much dampness. Other orchids, such as Lycaste, Trichopilias, Maxillarias and many Oncids and Odonts have roots that seem to last only a season or two, and root freely from the new growth. The roots of Calanthe vestita, Limatodes rosea, some Miltonias, and a few others have annual roots from the new bulbs. The cultivation of orchids is not hard work, but requires considerable knowledge and attention; and orchids that are dormant should be placed by themselves, so as not to get the same water and heat that growing plants require; they should never be put away in dark corners, but near the light, so that the bulb can ripen, for on this the future health and flowers often depend.

LATH FOR SHADING GREENHOUSES.

BY G. R.

I have for some years used shutters made of plaster laths for a window 3 by 6 feet. I use ten laths across and one and a half in length, making fifteen to a shutter, nailed on four cross pieces, with a space of an inch and a half between each lath, the cross pieces long enough to fasten on the sash, with screws on both sides. I was induced to try shutters some years ago after a hail storm had made havoc amongst my windows, and it has worked to my satisfaction against hail and in shading, for if the hail does not come square against the window it will not hurt the glass much. I take the shutters off in cold weather, and put them on when warm enough. It costs very little, and lasts several years. Against hail the laths are to be from some tough wood; I use elm. But for shade pine will answer, besides keeping the house cool.

MEALY BUG, &c.

BY J. B., FREDERICTON, N. B.

I noticed in the February MONTHLY some one inquiring how to destroy the Mealy Bug. I find a small brush costs ten or fifteen cents; half a pint of alcohol; pour out about a thimble full at once in a cup, apply it with the brush some rainy day. It will soon make them scarce. It is better to keep a look-out after those plants which are subject to it.

I add my testimony with pleasure to Dreer's and Henderson's coleus being satisfactory for the window, greenhouse or garden, with the exception of one or two already mentioned in the MONTHLY, especially where you have partial shade. A bed of them was very much admired by my employer and his friends during the latter part of the summer. Also a bed of Sedum corsicum from seed, with border of Echeveria, glauca and alternantheras. One or two little nick-nacks, as your taste suggests; bed heart-shaped.

FROZEN PLANTS.

BY PETER HENDERSON.

It is an old popular idea that shading plants after being frozen tends to lessen the injury. I have great doubts of its correctness. Some twenty years ago when houses were built on what is called the ascending plan, whereby they could be more uniformly heated by flues throughout, I had some nine or ten houses so constructed that were so elevated about five feet in one hundred. This elevation was a little too much, for it was found that the heat was greater at the high end than at the end where the furnace was placed. Sometime during the winter the thermometer fell to 10° below zero, with the wind blowing a hurricane which blew down the chimneys and in a great measure destroyed the heating power of the flues, and as a consequence the contents of nearly every house we had was frozen, but that portion which was lowest, although the furnace end, was most severely. The frost tapering in degree as the houses ascended, so that the plants at the high end were hardly injured at all. My foreman was a great believer in the shading theory, while I was not, but believing it would do no harm I agreed that one-half of the houses should be shaded by shutters while the other was left exposed to the full sunshine. The results were the same, as near as could be, in both cases. Where the plants had been severely frozen they were killed outright, lessening in a degree as it reached the high end of the houses. How far plants will stand frost in a greenhouse of course much depends on what they are and the degree of temperature at which they have been grown; but this marked example which I have related, and others of similar character which have come in the course of my experience have convinced me that just in the ratio of the degree of frost, coupled of course with the condition of the plant, will be the injury done, no matter what means are taken to remedy the evil. Scarlet fever or

diphtheria strikes the household. The doctor comes and prescribes—some recover—some die, though the treatment has been the same. The same results follow when no doctor has been called—some recover—some die. The reason is obvious, as in the matter of frozen plants, the disease has been more intense in some cases than the others, or the patient has had more strength of constitution to bear it.

Shading for Glass.—In reply to the query of your correspondent, R. L. B., of Des Moines, Iowa, I am glad to be able to give him a receipt for a better method than lime wash, which is not only very unsightly, but for most plants gives too much shade. We use now altogether naphtha mixed with a little white lead, just enough to give it the color and consistency of skim milk. This is applied with a syringe outside the glass, costing only about twenty-five cents to every one thousand square feet. One coat giving something the appearance of ground glass, which breaks the glare of the sun quite enough for most plants. In houses where such plants as ferns, dracenas, caladiums, palms, etc, are grown we give two coats. This shading sometimes requires to be renewed once about midsummer, but it is done so quickly and cheaply that that is of little consequence. The first sharp frost in fall loosens it so that it is easily rubbed off. We have tried many kinds of shading for glass, but have found nothing so cheap and satisfactory as this.

ONCIDIUM ORNITHORHYNCUM, &c.

BY JAMES TAPLIN, MAYWOOD, N. J.

Oncidium ornithorhyncum is best grown in a pot, in a mixture of orchid peat and sphagnum moss. It is one of the easiest of orchids to grow. It should be kept in a temperature of from 50° to 55° in the winter. In growing it, it is best to be careful in selecting varieties, as one kind is much superior to others.

Miss M. W.—Cape Jasmine will flower very well if planted outside, like any flowering shrub. If early flowers are desired they require strong heat. It is very doubtful whether the Rhyncospermum would grow as a house plant. The fault of the rose Devoniensis is its want of free blooming. House plants should be turned. The Marechal Niel grown by florists are not usually grafted.

R. L. B.—A shading for greenhouses which has given me perfect satisfaction is as follows: To one gallon of turpentine add one pint of boiled oil. Apply with a whitewash brush. If applied once in spring, and again in midsummer, will be sufficient. A little touch of potash and a woolen rag will take it off in the fall.

H. S. P.—Moss mulching on roses should only be used in the summer when evaporation is rapid, say from April 1st to October 1st. It has proved a total failure during the winter, according to all the growers who have tried it.

GREENHOUSES OF MR. DANIEL H. BROWN, ST. LOUIS, MO.

BY CHARLES CRUCKNELL.

Securing a seat in the yellow cars at Fourth and Pine streets on one of the coldest mornings of the old year, a fifteen minutes ride landed me at State and Lami streets, within a block of my destination—the private hot-houses of Daniel S. Brown, Esq. There are three houses newly built on the site of the old ones, which had become too small to accommodate the collection; one chiefly devoted to the large-growing palms, one to stove plants and the rarer kinds of palms, and a cool greenhouse for bedding and winter-blooming plants.

The entrance through double doors leads into the main building, the palm house. A more striking illustration for the purpose could not be named. It is a span-roof facing east and west, and is fifty-two feet long, twenty-four feet wide and thirty feet high. The stove is a lean-to, built at right angles to the main building, and connected therewith. Both houses are heated by hot water; double glazed, plain glass inside, and corrugated glass on the outside; the panes of the latter are twice the size of the former.

Entering the palm house such a scene of bewildering tropical beauty meets the sight that a moment's pause is absolutely necessary to collect one's scattered thoughts and comprehend the weird transformation. Viewing the scene from the entrance, at an elevation of three feet above the ground floor, one hardly realizes the immense proportions of the large specimens. In the centre the wine palm of India, Caryota urens, twenty feet high, rears aloft its mighty fronds toward the roof. The screw pine of the Isle of Bourbon, Pandanus utilis, is sending down its air roots, like huge augers silently driven by an invisible power, boring the earth beneath, and giving stability to the ponderous mass above. In the far distance a cocoanut

palm, Cocos Romanzoffiana is very conspicuous, its graceful plumes towering almost to the roof. The white bird of paradise, Strelitzia augusta, is seventeen feet high, close by which are specimens of Areca rubra and lutescens and Seaforthia elegans, scarcely inferior in height, but much more graceful in appearance. Latania borbonica, ten by twelve, Pritchardia pacifica looks so much like the last named as to be identical. Another large specimen and a beautiful palm is Oreodoxa regia. A sago palm, Cycas revoluta, looks as though it may have been handed down as an heirloom from the days of Noah. An odd-looking specimen is Ceratozamia Mexicana in bloom. Another curious plant, and one rarely met with of any size, is Zamia furfurea. Date palms are here in great variety. The bread fruit tree, Dion edule, is here with fronds four feet long. Among the handsome palms are large specimens of Chamærops elegans, excelsa, Martiana, humilis and tomentosa, the trunk covered with rough fibre (like a beard) to the ground. Corypha Australis and gebanga, Brahea filamentosa, and an exceedingly fine specimen of Astrocaryum murumuru bristling all over with dangerous looking spines. Two large dragon trees, Dracæna Draco, stand in stately pride like sentinels on duty, while Dracæna fragrans, in bloom, fills the air with its invisible sweetness.

Prominent among the fig tribe is the pippul tree of the Hindoos, Ficus religiosa; the celebrated banyan tree of India, Ficus Indica, Ficus Parcelli, eburnea, Porteana and macrophylla, the last better known, perhaps, as Artocarpus imperialis. The two end tables are filled with Cacti, odd misshapen things, which compensate in a measure for their ugliness by the sweet flowers they give.

On the back wall Ficus repens and minima, the smallest of leaved creepers are intertwining their pretty foliage with the mammoth foliage of the edible fruit Monstera deliciosa in perfect harmony. Half way up, growing in cracks and crannies, are the lowly things of earth, ferns, giving a charming effect to the scene below.

(To be concluded.)

A REMARKABLE ROSE BUSH.

BY CHARLES CRUCKNELL, ST. LOUIS, MO.

A short walk from the greenhouses of Mr. Brown are those of Wm. Syred, situated on Shaw avenue. The most remarkable thing here was a bush of Lamarque rose in full bloom. It occupies the centre of one house, which is a span roof built east and west. The house is sixty feet long by twelve wide;—benches occupy each side—and is warmed by a brick flue. The rose was planted seven years ago on its own roots. I made an estimate of the number of buds, by measuring off a small portion, and found it would yield three (3,000) thousand from its present crop; another crop is gathered in April, much larger buds, but about the same number, thus it will be seen that it yields six thousand buds a year. The treatment consists in taking the sash off the house in summer; and in the fall when it becomes necessary to put on the sash, instead of cutting out the wood, strips are used to bend the wood down and hold it in position till after the first crop; then a slight pruning is given it, and some two or three weeks of rest, when it is ready to commence growing for its second crop. After the April crop is gathered a much severer pruning takes place, when the same routine is gone over in the fall. A prettier sight I have never seen than this rose bush. Since writing, the above, Mr. Syred tells me he sold to the bouquet-makers twenty-five hundred buds up to December 15th.

DIRECTIONS FOR CULTIVATING PYRETHRUM FOR INSECT POWDER.

BY PROF. CHAS. V. RILEY, WASHINGTON, D. C.

Many of my correspondents ask for particulars and directions to guide them in the cultivation of the Pyrethrum seed, which has been sent to them. As its cultivation in many of the localities where it will be tried is an experiment, it will devolve upon the recipients to largely use their own judgment in sowing and cultivating, and I would simply advise to treat it as they would the ordinary Asters of the garden, or any other perennial composite plant. The *P. cinerariæfolium*, a native more particularly of Dalmatia, is already cultivated at Stockton, Cal., and is first sown in prepared beds of fine, loose sand and loamy soil, with fine manure, the seed being mixed with dry sand and sown carefully on the top of the bed, which is then raked so as to stir the surface to about half an inch in depth. The ground should be kept moist, but not too wet. The plants should be carefully weeded and transplanted to a loamy soil during the autumn. The P. roseum, a native more particularly of Persia and South Asia, has already to a limited extent

been cultivated in this country in gardens, for its pale rose or bright pink flower rays. It will undoubtedly thrive best in the more temperate zone and in the mountainous regions of the South. The flowers heads, at blooming time, should be gathered, dried and pulverized for use, though the whole plant possesses insecticide properties which may be made use of by alcoholic solution.

TREATMENT OF POINSETTA PULCHERRIMA.

BY F. WOODING, MONTGOMERY COUNTY, PA.

Will you kindly allow me to make a few remarks in reference to the treatment of this subject in your columns? They should be repotted and started into growth about the beginning of May. Pot them in some good rotten sod with a little mixture of sand, and in the pots you intend for them to bloom in. Take them outside about the latter end of May and plunge them in the ground two inches below the surface in a southern exposure where they can have full benefit of the sun. Let them make a fair growth before you commence pinching the leading shoots back; keep pinching back from time to time as required until nearly the middle of August. Take care in the meantime to lift them out of the ground two or three times during the summer as the roots are apt to grow through the holes at the bottom of the pots; if so they should be cut off each time of lifting. If this service is not attended to, the roots will grow down in the ground some distance during the summer, especially where the soil is light and where the plants are lifted; finally it will give them a severe check, they will lose a quantity of leaves in a few days, and the result is you have generally poor puny looking heads of bloom. After bringing them into the greenhouse, which should be done about the latter end of September, they should not have any less than 60° of heat at night, if possible 70° in the day time. Water then once a week with manure water. It is a great advantage to them and will amply repay you with finer heads of bloom. Manure water applied to other plants occasionally will make them bloom more freely.

I have been treating my Poinsettas this year in this way, and the result is highly satisfactory. I have a few good specimen plants with bracts or leaves that surround the flower from one foot to sixteen inches in diameter. Although they are plants that lose their leaves considerably, if you place them on a back shelf on the stage and set other plants in front to hide their stems, the Poinsettas look very effective and graceful with their brilliant scarlet leaves overlooking the front row of plants.

SCRAPS AND QUERIES.

OLEOBACHIA.—G. asks:—"What is Oleobachia palustris and why is it termed the battle tree."

CYPRIPEDIUM SUPERBUM.—G. inquires:—"Will some of the readers of the MONTHLY be so good as to give me a description of Cypripedium superbum. Also a few hints as to its treatment."

CŒLOGYNE FLACCIDA.—Mr. George Such, South Amboy, N. J., writes:—"The name which I gave for the orchid figured in your magazine is correct. You will find it as Cœlogyne flaccida in the *Botanical Magazine*, plate, 3318; and also in the *Botanical Register*, plate, 31."

CURIOUS SPORT IN A CARNATION.—S. F. T., Saratoga Springs, N. Y., writes:—"I send you by mail to-day a box of carnation blooms (three) and buds. You will find by dividing that they are triple flowers, one inside the other, and in all I have cut up I have found no seeds, always petals. It is a strong healthy grower and free bloomer, a seedling but no good. Quite a curiosity."

[Instances like these are not only curious, but they form the groundwork for new races. Pollen from other kinds would probably induce seeds.—ED. G. M.]

NEW AND RARE PLANTS.

ALOCASIA THIBAUTIANA.—This aroid was introduced by Messrs. Veitch of Chelsea, London. It is a splendid foliage plant of stately and robust habit, and without doubt by far the finest of all Alocasias.

The leaves are of imposing dimensions, and of firm durable texture. The foot-stalks support a noble heart-shaped expansion, from 24 to 30 inches in length, with a breadth of from 15 to 20 inches. The mid-rib forms a bold greyish white stripe over the dark ground color, and from it prominent veins branch with slight obliquity on either side. The color of the blade is a deep olive greyish green; this is traversed by the numerous grey veinlets branching from the primaries;

the upper surface has a lustrous metallic hue. For exhibition purposes Alocasia Thibautiana stands in the first rank among foliage plants, and in the stove it forms one of the most distinguished ornaments.

A first class certificate was awarded to it by the Royal Horticultural Society, July 3rd, 1877, and a certificate of merit by the Royal Botanic Society, June 13th, 1878.

"When Alocasia Veitchii and its twin sister A.

ALOCASIA THIBAUTIANA.

Lowii first came into this country, they were deservedly hailed by all lovers of beautiful leaved plants as acquisitions of the first water; but there can be no doubt that they are now completely eclipsed by Messrs. Veitch's new A. Thibautiana. It is altogether a grand plant, and we think it will turn out to be the finest of all the Alocasias."—*The Gardeners' Chronicle*, July 19th, 1879.

Messrs. Veitch named the plant in honor of Mons. L. Thibaut, of the firm of Messrs Thibaut and Ketcleer, Sceaux, France.

FRUIT AND VEGETABLE GARDENING.

SEASONABLE HINTS.

Fruit growers know by this time that the reproductive and the mere vegetative forces of plants are antagonistic. There may not be two distinct principles like two distinct men, in vegetables, the one directing the growth forces, the other the forces of reproduction; but the fruit grower has to act as if there were. While a fruit tree is growing freely it will not bear; while it is bearing freely it will not grow. A fruit tree is not needed to grow always or bear always; it is desired to have a due share of each. The art of successful fruit growing is in learning just how to let each of these forces have its due share. Some people ask the nurseryman when buying plants, "will they bear next year?" the answer usually is, it might, but don't let it. But this is not the best advice. If the tree appears to be growing vigorously, it may bear some, if not, take off any fruit that attempts to form. A raspberry or blackberry cane for instance, to do well should throw up a strong sucker for next year's bearing. If it do this, then let the old cane bear all it will, if not, prevent the maturity of the fruit. It is also true of trees not recently transplanted. If not growing vigorously thin out severely in the earliest stages of formation. If a tree be very vigorous, and there should still be the unusual phenomenon of a large crop, let it bear them all.

The cherry grower will now be asking how he shall save his fruit from the birds. The robin and catbird have done yeoman service, all through the spring on destructive insects, but the orchardist will have a right to ask what will it all amount to if we get no cherries? Where the orchard is large enough to warrant it, the small boy with toy pistols, crackers, and other funny things will pay perhaps. For smaller trees fish-nets to cover them may pay. It is, however, a problem we are not well qualified to solve.

The plum fruited so well over most of the Union last year, through nature herself having taken a hand in destroying the curculio, that people will be apt to forget that constant shaking of the tree, and destroying the insect is a necessity to any certain crop. It is not clear whether any of the easier remedies are beneficial. The writer determined to give Kauffman's tar smoke plan a fair trial last year. The pan of burning tar was carried under the trees every evening. There was a splendid crop, but then so had some neighbors who did nothing at all. But it may be different this season. It seems that we have gained a great deal in our knowledge of warfare against destructive insects of late years, but all methods require some work to carry out successfully. Without some work the earth seems to produce thorns and thistles only.

In the vegetable garden we must remember that for all vegetables which are eaten in an immature state, a very rich soil is essential to good crops. For peas, beans and such things a garden may be so rich as to produce plenty of leaves but few flowers. All this, however, has been seen to earlier in the season, though it seems well to mention it as celery planting comes along. It is one of those plants which loves rich soil.

At the end of June, some celery may be set out for early crops, though for the main crop a month later will be quite time enough. It was once customary to plant in trenches dug six or more inches below the surface; but the poverty of the soil usually at this depth more than decreases the balance of good points in its favor.

Some of our best growers now plant entirely on the surface, and depend on drawing up the soil, or the employment of boards or other artificial methods of blanching.

Peas for a fall crop may be sown. It is, however, useless to try them unless in a deeply trenched soil, and one that is comparatively cool in the hottest weather overhead, or they will certainly mildew and prove worthless. In England where the atmosphere is so much more humid than ours, they nevertheless have great difficulty in getting fall peas to go through free from mildew; and to obviate these drying and mildew-producing influences, they often plant them in deep trenches, made as for celery, and are then much more successful with them.

Cucumbers for pickling may be sown this month, and endive for fall salad set out. Parsley for winter use may be sown now, in boxes of rich soil, and set in a cool, shady place till it germinates.

Tomatoes, after trying all kinds of trellisses recommended, will be found to do the best on stakes tied up singly. It is best to plant a strong pole as for Lima beans, with the plants when first set out, and tie up as they grow. Marketmen generally let them grow as they will, on the ground, which, perhaps, although not yielding as much, costs less labor, and may thus be most profitable.

The Swede turnip or ruta baga should be sown about the end of the month. A well enriched piece of ground is essential, as by growing fast they get ahead of the ravages of the fly. Manures abounding in the phosphates—bone-dust, for instance,—are superior for the turnip.

Sweet potatoes must be watched, that the vines do not root in the ground as they run, which will weaken the main crop of roots. They should be gone over about once a month, and with a rake or pole, the vines disturbed somewhat from their position.

Herbs for drying for future use, should be cut just about the time they are coming into flower. Dry them in the shade, and after sufficiently dry to put away, tie them in bunches, and hang in a cool shed, or place them loosely between the paper, and stow away in cupboards or drawers, —the last mode is by far the cleanest and most approved plan with the best housekeepers. Some, indeed, powder the leaves at once after drying, and put them away in bags, ready for use.

COMMUNICATIONS.

FORCING STRAWBERRIES.

BY MR. JOHN PAGET, GARDENER TO HON. J. D. CAMERON, LOCHIEL GARDENS, HARRISBURG, PA.

I finished strawberry picking yesterday. The following may be interesting to you, and I will give you a correct record of the different pickings:

March 1st, picked first a few, kept no record; 3d, 2 quarts; 7th, 4 quarts; 12th, 6 quarts; 14th, 4 quarts; 19th, 11 quarts; 21st, 5 quarts; 23d, 11 quarts: 28th, 13 quarts; 30th, 4 quarts; 31st, 10 quarts; April 3d, 10½ quarts; 6th, 5½ quarts; 9th, 5 quarts; 13th, 4 quarts; 18th, 2 quarts; 20th, 1 quart.

I may state that I grew 250 pot plants, two-thirds Triomphe de Gand and one Charles Downing. I planted them out yesterday. I am sure there are five quarts on them now green, but I could not keep red spider from putting in appearance, and I was afraid of peach trees. Picked Alexander peaches on 6th of April; fine looking peach and early, but not first-class flavor.

[In our last it was noted that it would not be thought extraordinary to gather ripe strawberries at Lochiel on the 1st of February. Not wishing to claim credit for more than his due, Mr. Paget furnishes the above statement of his crop this season.—Ed. G. M.]

GRAPE VINES IN POTS.

BY JOHN WOODING, BRANCHTOWN, PA.

Grapes grown in pots for forcing, when well furnished with fruit, have a beautiful appearance, and when properly grown make an ample return. For this purpose the plants should be raised from single eyes, or a piece of the preceding year's wood, with only one joint taken off at the spring pruning and placed in a small pot of sandy earth, setting it in the grapery, where it will progress at nearly the same rate as the parent plant. As soon as it has filled the pot with roots it should be shifted into a larger one, and if everything goes on favorable it will require to be again removed, this time into the fruiting pot, which should not be less than fifteen inches over; and here it will require to establish itself before winter, that it may be in a fit state for resting until the succeeding year, then it must be cut back to within four or five joints of the pot, and afterwards be subject to the same treatment as the mature specimens. It will

usually produce three or four bunches the first year, and by pruning back to three joints annually, and supplying the roots with fresh mould when first started, and liquid manure at their most active season, the plants will continue fruitful a long time.

The above plants are cultivated now pretty much on first-class places in England, where I have grown them myself, and are used for table decoration with ornamental foliage plants, and I don't know that they could not be cultivated with advantage by those in that line of business.

EARLY PEACHES.

BY T. V. MUNSON, DENISON, TEXAS.

I believe the common theory as to why Hale's Early Peach produces so many extra early kinds, all so nearly resembling itself, is, that it blooms so late—after nearly all other varieties are out of bloom, and consequently it is not fertilized as other kinds.

This I always doubted, as almost always there are scattering blooms in any orchard of many varieties when the Hale comes into bloom, and insects would be almost certain to carry pollen from other flowers to the Hale when it began blooming. With me this season most other varieties were about half through blooming when the Hale began, and we have had a season well adapted to bring out all varieties to their fullest development in their true time of blooming as compared with one another. I think I have discovered the true cause of the Hale's and some other kinds so generally nearly reproducing themselves. While trying to cross fertilize Alexander, Early Rivers, Yellow St. John Waterloo and other varieties, with a view to obtain a better peach, if possible, than Alexander, &c., and as early or earlier, I found that a day or two before the petals of nearly all the large flowering early varieties, and especially so of the Hale tribe, the stigma or female part of the flower was already covered with pollen-grains from the stamens within the same flower, thus fertilizing itself completely before insects, or pollen in the air from other varieties could find admittance. The same fact seems to me to explain why these same varieties are so much surer to pass through frost uninjured than the small open-flowered kinds, such as the Crawfords, &c. Also, this constant "in and in breeding" may explain why this tribe of peaches is so subject to rot and so few of the seeds will germinate.

These ideas may not be new, but, so far, have not come under my eye in print. I should like to hear from others on these matters through your excellent journal.

Prospects with me are excellent this spring for testing numerous varieties side by side, especially of the extra earlies, and if all goes well we shall know more than heretofore of these new claimants, some of which were to ripen a month or less earlier than Alexander.

KEEPING APPLES.

BY RUSTICUS.

I was quite interested in Mr. E. P. Powell's article in your March number, on "How to Save your Apples." It is a matter in which I am deeply interested, and which I have been writing about. With your kind permission I will repeat what I too have said, for I am anxious to disseminate as widely as possible what I deem of vital importance in apple keeping. Who would not adopt the very best method known to store apples through the winter? Nearly every one relishes apples. These are the most generally used of all our native fruits. A larger business is done in them than in any other. They are the most profitable and reliable. They can be most depended upon. There are more "apple years" than of any other fruit. It is claimed that they are the most wholesome fruit, and the ones that would be the most missed. Now, it is of the first importance, Mr. Editor, to ascertain and to make use of the best and safest way of keeping so valuable a fruit. Improvements are being made in many things nowadays. Have we been in error in the mode of keeping apples? Is there a better way? Formerly, a perfectly dry air, and a receptacle entirely free from moisture, were considered indispensable requisites by the generality. It is now clearly established that these conditions, so far from being absolutely necessary, are a disadvantage. Old fruit men would doubtless ridicule the idea of keeping apples enclosed in a box at the bottom of a canal, the water even to freeze hard. And yet it was discovered by accident that a certain variety of apples not only kept perfectly under similar circumstances, but their season was prolonged several months. I quote from Dr. T. H. Haskins: "A friend of mine being in Montreal says that seeing some very fine

Fameuse apples exposed for sale in that city, he inquired how they were kept. He learned that they were part of a cargo of a canal boat which had sunk in the canal, and was frozen before it could be raised. When this was effected in the spring, it was found that the cargo of apples which would not have kept much longer than January in the air, had been preserved perfectly in the water. An old custom of burying apples in the ground, the same as roots for winter storage, also demonstrates that moisture in contact with apples does not necessarily cause rotting. In Russia, I understand that apples are preserved in tight barrels with water, in the way practiced in this country with cranberries. What, then, is the essential requisite for the safe winter keeping of this fruit? Simply, I believe, the preservation of a low, uniform temperature, as near the freezing point of water as possible. This can be maintained in dry cellars, but much more easily and perfectly, I think, in wet ones. The moisture does no harm to the apples. The presence of water has a controlling power over the variations of temperature near the freezing point, as all know who have had to keep water in a cold cellar to keep it from freezing. Moisture may even be a direct benefit in preventing evaporation from and consequent withering of the apples, though this evaporation is very slight at the low temperature necessary in fruit cellars for success in keeping apples over until spring."

A correspondent of the Massachusetts *Ploughman*, who purchased in spring nearly 500 barrels of apples, kept during winter under various conditions, reports as follows: "Those stored in damp, dark cellars were brighter, firmer and less decayed. In one cellar in Woodstock, there were some eighty barrels; in this cellar there was a spring; the water was some three inches deep; the barrels of apples were not headed up, they were just above the water on stones and timbers; Russetts, Greenings, English Beauties and Baldwins. In some of the barrels there was not a single specked or decayed apple. They were the best of all I bought. The others varied in firmness and bright appearance. A dark, damp cellar in every case proving the best."

An experienced fruit buyer said that whenever on entering a cellar, he was compelled to walk on boards to keep out of the water, he was sure to find the fruit in good condition. The well-known English horticulturist, Mr. Gottsome, writes to the London *Garden:* "My own experience of fruit rooms is that they are generally too dry and over-ventilated, for I do not think that a really sound apple will rot so readily as some seem to fancy. From having observed during the last few winters how sound and plump apples keep when left under the trees, covered with fallen leaves, I am inclined to think that if our fruit rooms were more after the style of cellars, or partially sunk under ground, their contents would keep better than lofty, airy structures, which do not answer the purpose for which they are intended so well as humbler buildings. We store large quantities in thatched houses in large heaps for winter and spring use, and I am certain they keep far better than when laid in single layers on shelves, with the dry air acting upon them and shriveling them up long before they would be if kept in a moister atmosphere."

Pits should be dug separate from the dwelling houses, and thus avoid the unpleasant effects in the living rooms. In Canada, apples are rarely stored for keeping in house cellars. A special cellar is made, deep, with thick stone walls laid in mortar. These walls rise above the surface only about ten inches—to allow of small windows for ventilation and light. There is a double floor above filled in with moss or sawdust. This floor is covered by a roof-like attic, and the apples are then kept until the approach of severe frosts, when they are sorted, barreled and rolled and lowered into the cellar through a trap-door, which is then closed, and packed in the same way as the floor. At times during the winter, when the weather is not freezing, this cellar is opened and the fruit removed for sale. When properly done and managed, there is little or no loss in this way of storing winter apples. I quote from Dr. Haskins, a high authority. With your approval, Mr. Editor, I will continue the subject in a future number. [Please do.—Ed.]

CINCHONA CULTURE.

BY VLADIMER DE NIEDMAN, WASHINGTON, D. C.

In recent issues of the GARDENER'S MONTHLY, I notice with much pleasure the notes on Cinchona. It is a true and well known fact that the consumption of quinine of late years has increased to such an enormous extent, that the demand has exceeded by far the supply; owing also to a great destruction of the quinine trees in the South American forests by the most reckless manner of gathering the bark by Indians. At the so frequent raging fevers in

East Indies and Australia, thousands of people have perished only for want of quinine, being not able to pay the enormous prices charged for this valuable drug. It is not so many years back since the Royal Gardens, Kew, had sent men to South America to collect the seeds of cinchona for the plantations in India and Ceylon, and therefore the satisfactory results gained of them are indeed worthy of our admiration, attention and consideration, as the reduction of the high price of quinine in the market has proved already a great alleviation to suffering humanity.

Whether quinine will ever replace opium in the trade with China, undoubtedly remains as yet a question of time. The young and thriving plantations of quinine trees, belong to Mauritus, Queensland, (Australia) and the Island of St. Helena. The gray bark Cinchona Peruviana and the crown bark, Cinchona officinalis, are less cultivated, but mostly the red bark—Cinchona succirubra of Ecuador. The hard cartagena (Cinchona cordifolia) and Cinchona condaminea, all grow very luxuriantly and seem more adapted to the climate of these countries, than the first named ones. In Mauritus and Queensland the plants were grown mostly from imported seed from Ceylon and India, while at St. Helena, the plants—over a thousand—were sent, I believe, direct from the Royal Gardens, Kew. The quinine bark is found in commerce in pieces of different sizes; some are rolled up in thick short quills, and others are flat; the outside is generally brownish, and has sometimes a whitish moss on it, the inside of a yellowish, reddish, or rusty iron color. To the trade it is astringent and bitter, having advantage over other bitters in being aromatic; the best sort is very bitter, resinous, breaks short and smooth, and is easily reduced to powder. The action of quinine on dead animal matter is antiseptic; on the living body it acts as a stimulant tonic and antispasmodic. The way of collecting the quinine bark in Peru is, perhaps, as follows. On the long chain of mountains extending to the north and south of Loxa, the trees are growing abundantly, generally in a red clayey or rocky ground on banks of small rivers, the trunks frequently exceeding a man's body in size. The proper time for cutting the bark is from September to November, the only period of considerable intermission of rain. Having made a road from the nearest plantation in the low lands to the spot where the trees abound, huts are built for the workmen, and a large hut for the bark. Each Indian is provided with a large knife and a bag to hold fifty pounds of green bark; he cuts down the bark as high as he can reach from the ground, and then fastens a stick about half a yard long with tough withes to the tree, like the steps of a ladder, fixing a new step higher every time the bark is sliced off, thus ascending to the top, while another Indian gathers up below what is cut. Care is taken not to cut the bark wet. The moist bark is immediately carried to the low country to dry, spread in the open air and frequently turned, otherwise it loses its color, turns black and rots. As the trees perish generally soon after they have been stripped of their entire bark, it is no wonder that through this reckless system a considerable scarcity of them has been apprehended of late, and even a complete exhaustion feared. Of trees possessing a bark with similar properties to quinine, there are the Picraona excelsa, the bitter wood of Jamaica, and the Alstonia constricta (Apocyneæ) and Petalostigma quadriloculare (Ephorbiacea) of Queensland, Australia; the bark of this tree produces an intensely powerful bitter, and is said to contain the same qualities as the genuine quinine. The Alstonia constricta and A. scholaris, a gutta-percha yielding tree of Ceylon are largely cultivated in Queensland on account of their peculiar qualities. There are also a few Cinchonas in culture for their pretty foliage and flowers in European hot-houses, as C. Caribea, C. floribunda, C. Jamaicensis, C. montana of the Caribbee Islands, C. longiflora of St. Domingo, and C. remijana and C. Hilarii of Brazil. All of them produce the so called mock quinine bark of commerce.

Some Remarks about Varieties of Fruit brought to the Rochester Market.

BY T. T. SOUTHWICK, ROCHESTER, N. Y.

As a general rule, no better plan can be adopted to ascertain what varieties of fruits pay best than to ascertain what growers bring to market in largest quantities.

Thinking that a few facts from so important a fruit centre as this might be of some general interest, even though of little practical value, I submit the following facts:

Strawberries are grown in very large quantities and brought to this market, and from here shipped to nearly every village within a radius of one hundred miles, in addition to those sent

to New York. The Wilson's Albany, are almost exclusively grown, and after the first few pickings, bring the growers, for table berries, about four cents per quart, retailing from the stores at five cents. Growers claim the Wilson is profitable at this price. Col. Cheney is beginning to be rather plentiful, and commands a cent per quart in advance of Wilson. Triomphe de Gand are brought to market in moderate quantities, and retail at about ten cents. These three sorts include all the varieties seen in market here in any quantity.

Plums of late years are becoming abundant, and bring the grower about two dollars per bushel. Monroe Egg is chiefly grown for market here, but in other parts of the State Lombard leads, and will do so here, I think, after a few years.

Pears last season brought the growers about a dollar and seventy-five cents per bushel, Bartlett and Duchess being the varieties chiefly brought in. Seckel and L. B. Jersey are considerably grown, however.

Peaches, for the first time in many years, were abundant and cheap, retailing for about fifty cents per basket for fair quality, and eighty cents for extra nice. The Crawfords, Early and Late, lead, and in fact pretty nearly to the exclusion of other sorts.

Apples are our great staple. Red Astrachan seems to take the lead in summer apples, while Baldwin reigns supreme as a winter fruit. I am told by dealers that fully three-fourths of all the apples they ship are Baldwins. R. I. Greenings follow next in quantity, Russets and Spys and various odd sorts making the balance. Apples brought the grower this past season about one dollar and ten cents per barrel, or about eighty-five cents for two and one-half bushels of fruit.

Grapes are abundant. Concord is chiefly grown, bringing the grower for table fruit about three cents per pound, and for wine grapes about two cents. Some of the Rogers Seedlings are beginning to make their appearance, particularly Salem and Wilder, and retail for ten cents. Martha sells for the same. Delaware are plentiful at eight cents retail.

If one were to moralize on these facts, there would be a strong temptation to say that the moral to be drawn is, that the poorer drive out the better fruit from market. But the real facts are that very productive, large, high-colored fruits drive out all others. Apparently most people buy fruit not to please their taste, but because it pleases their eye.

I have doubts about this being the case always, however. As the people learn the value of fruits, such coarse productions as Baldwin Apples and Concord Grapes must give way to better sorts, and in my judgment the shrewd grower is he who plants new orchards or vineyards, with good eating sorts.

SCRAPS AND QUERIES.

ASPARAGUS BEETLE.—Prof. J. A. Leitner contributes an interesting paper to the *Country Gentleman* on this insect. It is a long known pest in the old world, having been named by Linnæus, Crioceris asparagi. It is often attacked by a black parasitic fly, which will sometimes almost sweep the enemy out of some districts It is a pretty beetle, having shining red, black and yellow colors; one-fourth of an inch in length, and half as broad; head, black; thorax, tawny red, marked more or less distinctly with two black spots. The wing covers are punctured in rows, and are of lemon color, broken into three spots upon each by a black stripe along their junction, a transverse band a little behind their middle, and an interrupted band near their tips. Outwardly the wing covers are bordered with orange. The body beneath, and legs are shining black. They come out as the young shoots come from the ground and feed on the plant, as also do the larvæ. They have about three broods a season. Freshly slacked lime dusted over the asparagus when the larvæ appear, has been found by Mr. A. S. Fuller an effectual remedy.

PREPARING WALNUTS FOR THE TABLE.—A daily paper says: "During the walnut season, while they are fresh and crisp, Queen Victoria has every day on her table a dish of this fruit taken out of the shells and carefully freed from the skins. To prepare this royal dish is a work of skill, for the nuts are expected to appear unbroken and piled up in a white, irregular, but perfect mass. Several girls, with agile fingers, are employed daily in the stillroom of the Castle at Balmoral in preparing the dish of walnuts as required for the royal dessert."

INJURED GRAPE VINES.—G. S., Brocton, New York, writes: "So far as I have been able to ascertain, no material damage had been done to the grapes and peaches in Portland up to the first week in February, and why? Because the

sky had been constantly cloudy, the temperature of the atmosphere severely cold but remarkably still. The latter part of February and through March, keen winds and bright sunny days prevailed, and in consequence our grapevines and peaches in the full bright light of the snowy glare have suffered severely by evaporation. So far I am able to follow you, according to your teachings, but now comes what is to me enshrouded in darkness, and I wish you would try to enlighten me upon it. All our young vines in the vineyards, covered since the 20th of November last continually up to to-day with more or less snow, and at present writing with four to six inches, are, all over the town of Portland, wherever we examined, more injured than those exposed. To what cause do you think is such to be laid? It could not have been the cold, neither evaporation, in my opinion. Is it possible that plant life can be destroyed by smothering with snow? Often have we had a covering four or five feet deep for six weeks at a time. I wish, Mr. Meehan, you would enlighten me on that point."

[So many circumstances are involved in a case like this that it is not possible to give any definite reply. It is so well known that grape branches or other branches can be laid down and covered with earth or snow through the winter with advantage, that one may be safe in saying that it was something else and not that which killed them. It is likely that they were injured in some way before the 20th of November. If that be not so then we may look for something else. At any rate only those cognizant of all the facts could give anything more than mere guesses.—Ed. G. M.]

The Grape Crop at Brocton.—G. S., Brocton, N. Y., says: "The grape crop in the town of Portland, in 1880, was 1,706,733 pounds, or 858 tons and 733 pounds. Of this amount, 180 tons were sent to Philadelphia alone, which Mr. Michael, of that city, mostly handled, and he assured me that the Brocton grapes brought a half to one cent per pound more than Hammondsport. Certainly his returns were satisfactory to all shippers from this town."

Kieffer Pear.—F. L., Madison, Wisconsin, writes: "Would you be kind enough to give us some information about this fruit which seems to be widely pushed from your section of the country, and is pronounced to be wholly free from the common diseases of the pear?"

[We cannot say more than we have said, viz., that it is a seedling from the Chinese Sand Pear, but that the fruit in quality and appearance is like a first class Flemish Beauty. As to its being "free from the ordinary diseases of the pear," we regard it entirely too soon to make any such claim, as the variety has not been growing for more than a year anywhere outside of a locality near Philadelphia, where the ordinary pear is unusually healthy and free from disease. It is therefore no rule as to how it will behave elsewhere.—Ed. G. M.]

FORESTRY.

COMMUNICATIONS.

CATALPA SPECIOSA.

BY PROF. C. S. SARGENT.

This species has been in the past a very favorite tree in the prairie towns of West Louisiana where fine specimens are common; and at several places both in Western Louisiana and Eastern Texas it is naturalized in the woods at considerable distance from any existing settlements.

Mr. Letterman of Allenton, Mo., who devoted last summer to studying the forests of Arkansas and the Indian Territory, discovered some fine specimens in the town of Washington in Southern Arkansas. In the hotel yard there, he writes me, are two trees which were brought from Nachitoches, on Red River, in 1840, and which measure eleven and one-half feet and ten and one-half feet in circumference at four feet from the ground; and two in the grounds of Gen'l Y. D. Royston, which were brought from Monroe, La., in 1836–37, and which girt ten and one-quarter feet. Mr. Letterman found this

tree thoroughly naturalized in the woods about Washington and about Little Rock on the Arkansas River.

NOTES ON EUCALYPTUS.

BY BARON F. VON MUELLER, MELBOURNE, AUSTRALIA.

For out-door culture Australia offers but little to the Eastern United States; but some eucalyptus and acacia may be utilized for South California, Arizona and Southern Texas; but E. amygdalina, E. parviflora and E. Gunnii, (all tall timber trees), may endure winters of yours in more northern States, as they adorned the Australian Alps. The Italians under the leadership of Count Torelli, I have recommended to plant Eucalyptus on the malarian, forbidden swamps near Rome, after E. globulus (but only in its young sappy state), was largely destroyed bythe unusually severe winter cold of the year before last. But this time the experiment is made with E. amygdalina, the richest oil-yielder of all eucalyptus, and one which will live in a cold climate where no E. globulus will stand through the winter months. For timber, however, the E. amygdalina is far inferior to E. globulus and many other sorts. E. Gunnii and E. parviflora yield good timber, but their hygienic value is not equal to that of E. amygdalina, and the growth of none of them is as fast as that of E globulus; still they are all trees of comparative celerity of growth, especially in somewhat humid soil. I still believe, that much might be done to subdue the yellow fever of New Orleans and other southern places in the States, if all back-yards were planted with eucalyptus; but should the climatic condition not admit of it, I would earnestly impress on all concerned to plant your most terebinthine pines at New Orleans, and by the millions. Their volatile oil acts much like that of the eucalyptus, as from its emanations originate dioxyde of hydrogen and ozone, the most powerful oxydisers and therefore destroyers of micro-organism and the gases in which they dwell. I have given officially the same advice to Holland for trying to suppress the miasmatic exhalations which cause the marsh-fever there; and I have sent the eucolyptography to the National Board of Health of North America, so that my views on the hygienic value of the eucalyptus (and pines) have become known to the Board. Perhaps you are inclined to take up this important question in your highly valuable and widely circulating MONTHLY.

I am engaged on determining at present the percentage of volatile oil in the twigs (leaves and young bark and young wood) of various pines, as this has an important bearing on the sanitary value of each species of fir.

[The above from Baron Mueller is from private correspondence but of so much public interest that we hope he will pardon its publication.—ED. G. M.]

THE BLACK WALNUT IN NORTH CAROLINA.

BY M. W. CALDWELL, MECKLENBURG CO., N. C.

In January number, page 20, I noticed an article on black walnut. On its scarcity, value and its quick growth I just wished to speak, and of one in our neighborhood, this county. Two miles distant lives an old widow lady, eighty-seven years of age; there is a black walnut tree growing in her yard. She told me two months ago that she planted it in 1814, sixty-seven years ago. It measured around the trunk one foot from the ground, fifteen feet in circumference. At four feet from ground it was ten feet in circumference. The tree forks about ten feet from the ground, the body being nearly evenly divided. Each of these limbs separate again about nine feet higher. The tree has many large branches further up. It is about sixty feet in height. Of late years a good many limbs have been broken off by storms, ice and fruit. The old lady says that it was about two feet high when planted and had been bearing fruit about fifty-six or fifty-seven years, and she thinks the tree has made over five hundred bushels of walnuts. She told me that it frequently made ten to fifteen bushels in a year, and that she sold eight bushels of last year's crop, getting one dollar per bushel; some years more and some less. No other trees near this one in the yard; soil, red sand clay; subsoil, rather poor; the ground always clean under the tree. Do not know anything about the sugar-making qualities of the walnut, but would say I did not think there was any sweetness about its bark. I remember digging the roots of black walnut for my mother to dye wool for making winter clothing; it was very customary when I was a boy. The bark of the roots dyes a very nice brown. Walnut is getting scarce in this neighborhood; such as is fit for furniture.

EDITORIAL NOTES.

NEWSPAPER NONSENSE.—There is no doubt but the newspaper nonsense, and which some of our agricultural contemporaries would have us adopt, does more harm to forestry planting than many persons have any idea of. Here before us is an article from Cincinnati, showing that the increase of planting in Kansas has brought down the heavy rains and snows of the past winter. Any common-sense person must see that by the same reasoning those States which have cut away timber ought to have less rain or snow, and would hesitate to plant on such flimsy pretexts as these.

The great forces of nature which rule the currents in the atmosphere, and from which climate results, are on so immense a scale that it is childish to suppose they are influenced to any material extent by a few hundred acres of timber land or bare sand. The belief in such trifles is of a kin with the old notion that the "sky" is like an egg-shell, and the stars are holes cut through, showing the light and glory beyond.

There are plenty of reasons for judicious forest planting, but those who think to plant must be disgusted with trash like this.

Our wet, cold and snowy winter is much more likely to have resulted from an unusually southern flow of ice in the Arctics than from all the planting that has been done in the United States for a century. Currents are caused by the unequal weights in the atmosphere. Warm air is light, cold air is heavy. The cold air rushes in to take the place of the warmer ascending air, and at certain temperatures the meeting currents condense the moisture. These currents continually vary, just as the "headquarters" of the light weight and heavy weight change, as they constantly do from interferences. An ice field moving a few degrees changes by so much the direction of the return cold current to the equator. On the other hand a volcanic island, a sand bank, or some other disturbance of a warm stream from the tropics, will cause the change of location of an ice field. The influence is reciprocal, and it is here we have to look for climatal causes of changes. Rains and snows would be as now, though there were not a solitary tree on the face of the earth.

LUMBER IN THE SHENANDOAH.—*The Virginias* gives the following as the leading kinds of trees lumbered along the Chesapeake and Ohio Railroad: Yellow Poplar or White Wood (Liriodendron), Black Walnut, Ash, Cherry, White Walnut, Basswood, Maple, Beech, Buttonwood (Sycamore), Hickory, Chestnut, White Oak, White Pine.

HOOP-POLES.—These are a considerable article of trade between Buckingham county and Richmond, Virginia. Quantities are shipped from New York to the West Indies.

SUMAC.—The Lynchburg *Advance*, published in the heart of the Sumac region, says: "Gather when the leaves are full grown, say from June to August. Only the leaves and the small stems on which they immediately grow can be used. Keep it clean of all sand, sticks, berries and trash. Remember that sunshine or rain or heat in bulk spoils it. Keep it under shelter and well dried. When properly cured the leaves will have a rich green color as when on the bush, and will easily crumble in the hand. It requires five or six weeks to cure."

BIRCH TIMBER.—The *Greely Tribune* says: "The small value of Birch wood for fuel, and its lack of toughness and strength, except in the smaller twigs, have led to its general neglect in the arts. Our more enterprising builders of railway cars, however, have discovered that its light weight, close grain, and rich finish make it admirably suited for certain applications where fine finish and bright effects are desired. The contrasts presented when White Birch and light colored Ash are relieved by the red of the Cherry Birch, are said to be peculiar but pleasing.

BLACK WALNUT IN KANSAS.—B. F. S., Lawrence, Kansas, says: "Am this day in receipt of a letter from my friend, who owns the farm where the Walnut stands which I have written you about. He says he measured it a few days ago, and that its girt is six feet four inches one foot above the ground, and last year it bore twenty bushels of walnuts, worth thirty cents per bushel."

[There is no more valuable tree to plant than the black walnut in alluvial soils. In these it grows very rapidly, and will make good timber in comparatively few years. But it is not a tree for poor land. Of course, few trees like poor ground; but the black walnut is certainly one of the worst. All the walnut and hickory family are valuable timber trees, but always in the richer soils.—Ed. G. M.]

NATURAL HISTORY AND SCIENCE.

COMMUNICATIONS.

THE HOME OF THE TORREYA TAXIFOLIA.

BY MARGID DIGRAM.

My own early conception of Florida would correspond, I fancy, very nearly with that popularly held, and which, if given in a few words would agree nearly with this: That it is a great sandy-surfaced peninsula, covered more or less with semi-tropical forest, and with natural gardens, or parks of flowers, through which there flows one great river, the broad, silent, lake-like St. Johns.

Of course the idea taken in, and held by anyone, of a region that has been described to him as a land of flowers, would not be very distinct, nor easily put into words. Descriptions that he had read of various other localities which bear a similar reputation, such for instance as portions of South or Central America; the valley of the Amazon, or that bordering the upper reaches of the Orinoco, or perhaps of the De La Plata, would furnish him with an abundance of materials with which he might build an imaginary flowery land in his own mind, and these he would doubtless use in that way whenever Florida was spoken of, or he had especial occasion to think of it, the picture being modified slightly by the several facts he may have casually picked up in conversation.

There is quite a large number of persons who though they have never obtained a glimpse of Florida, still are aware that a great arenaceous tract starting from a point just below the harbor of New York, continues indefinitely southward, with an apparent broadening of its area as it advances in the direction of the Gulf. This they would very naturally infer would reach the shores of the latter, and consequently constitute the superficial covering of the Peninsular State.

To these people Florida must exist as nothing more enlivening than a vast sandy plain covered and shaded with dark, ever continuing forests of pine and scrub oak.

Having myself passed through various portions of the State, by boat, by rail, and by stage, I can confidently say that neither of the above conceptions of it are perfectly correct, though the latter view makes the nearer approach to the reality. Florida is truly speaking a brighter and cheerier edition of East and South New Jersey.

It is too, mostly a plain, and is largely covered with pine forest; but the plain occasionally rises, and breaks into a waved surface and the pines are often tall noble trees that standing widely apart, allow an abundance of sunlight to reach the flower carpeted ground beneath them, producing on an early spring day a wonderfully happy scene, and equally happy effects on the observer. Along the borders of streams, encircling lakes, marshes and innumerable dark pools of water where the ground is slightly depressed, a richer vegetation obtains, which is mostly deciduous, although the magnolia, the wild orange, the evergreen oak, and the palmetto, together with many species of tall shrubs mostly belonging to the order Ericaceæ, are well represented.

These last—the shrubs—during the months of March, April and May, are covered with exquisite bell-shaped flowers, which, however, excepting in one or two instances, are not especially conspicuous. The adjective that I have used to describe the appearance of these higher heathers says a good deal, but it wants squeezing a bit, or strongly emphasizing, to bring it up to the point of fairly covering the delicious sensations the writer sometimes experienced in coming upon extra fine specimen plants, growing probably upon the banks of a forest rivulet, with their drooping wand-like branches densely covered with white or pale pink blossoms.

An instance as against a somber aspect being a conspicuous characteristic of Florida scenery, I will mention the brilliant coloring of the stream-bordering forest, as seen along the Saint Johns during the early part of the year, which though paler in the tints exhibited is similar to that witnessed at the North during the late Fall, the colors being made effectively conspicuous by contrast with the evergreen foliage everywhere present.

There are other more substantial ways in which the Southern State differs from the Northern one with which I have likened it.

These are all to be found at the surface, or below it, and so out of sight. One hardly anticipates finding rocks amongst sand, and yet in a number of places, a limestone rock is seen in detached blocks, or fragments scattered over the ground, or solidly bedded and apparently resting on an inexhaustible store below.

This rock bears considerable resemblance to similar rock quarried in another peninsula, that of Italy, and there employed for higher architectural purposes.

Along the coast, shell rock is a product, occurring in strata which may be seen bent out of their original horizontal position. Bearing the Spanish or Indian name of coquina (ko-kee-na); many specimens of this have been carried away by visitors and destributed widely over the country. Though seemingly very loosely held together the coquina proves a very durable building material as may be witnessed by an inspection of the very old walls of dwellings and those of the fortress, still occupied in the antique and very picturesque city of St. Augustine. Some portions of the State appear to be underlaid with oyster shells in great beds, the shells being in so nearly perfect a condition that one might easily suppose them to have been but recently placed where found. I have seen these shell beds six or eight feet below the surface of a perfectly level plain, and where they could only have been deposited when the entire land was at a lower horizon.

(To be concluded.)

GELSEMIUM NITIDUM.

BY W. A. M., PHILA.

I see in your April number a description of the double flowering Carolina jasmine. [Gelsemium nitidum, I believe is the proper name. I have seen it growing luxuriantly, equal to the single variety. It is very sweet and beautiful, and I should be very glad if Capt. D. W. Langdon, of the celebrated Langdon Nurseries, could tell us if it is as hardy as the single variety.

A FINE WITCH HAZEL.

BY MISS R. D. G., READING, PA.

The arrival of the GARDENER'S MONTHLY reminds me of a beautiful witch hazel (Hammamelis Virginiana) of which I wish to tell you. It grew in Monroe County, Pa., in an open plateau in the wild woods, not far from Buckhill Falls. The shape, was an exact sugar loaf, covered with golden bloom, height about ten or twelve feet and diameter at base four to five feet. It was so perfect in every respect, standing there on the wild wood lawn, that I thought some one who could appreciate it, should hear of it, if they could not see it, and perhaps others could be trained to this shape.

WILD FLOWERS OF SOUTH CAROLINA.

BY A CHARLESTON LADY.

We have been much pleased to-day, May 2nd, during a long drive, with the elegance of our native Styrax which I think well worthy the attention of those who love a garden. Buds and blossoms resemble those of the Orange, and their delicious fragrance entitles them to consideration. Growing in rich moist soil I almost despaired of its succeeding in my dry sandy garden. However two years ago I planted several without enriching the soil; this year they are in lovely bloom, and promise, with some mulching, to make pretty trees. The star shaped flowers are purely white with a green calyx and the stamens are yellow. It blossoms close to the stem and the flowers literally cover the tree.

The Cross Vine, or Bignonia, is not I think sufficiently esteemed. It is a noble creeper, both for its beautiful strong foliage and its many colored blossoms; to-day we collected long wreaths, some with flowers, bright orange, marked with brown; others fiery red, the inside of the cup of a paler hue, another pink and nearly white, while yet another was flaring yellow. We remarked that the deep hued flowers had foliage of a darker color, veined with red or brown. This plant I have also succeeded with in my garden. It grows luxuriantly over a rustic screen flowering profusely and even grows up to the roof of my kitchen, hanging in festoons from the eaves.

While thinking of our lovely woods, I cannot resist mentioning great patches of blue lupins we found by the roadside, many nearly a foot in height, and in a little while there will be tall branching white and yellow ones, glimmering among the pines.

[The Styrax grandifolia was once in the famous Bartram gardens, but like so many interesting mementoes of the famous Botanist, is not there now. It shows however that it is perfectly hardy in gardens quite far north.—Ed. G. M.]

EDITORIAL NOTES.

FUSCHIA PROCUMBENS.—Most of us have heard of the two disputants, one proving that the breath was a cooling agent by blowing on his hot coffee, the other that it was a warm principle by blowing on his half-frozen hands. Many disputes in the philosophical world are of a similar character. Nothing seemed to please Erasmus Darwin more than showing in the arrangement of the stamens and petals, how beautifully nature had designed that flowers should fertilize themselves; but his grandson Charles, the present Darwin, will take the same flowers, and show by the same structure, that self-fertilization is abhorrent; that cross-fertilization is the great desire of floral nature. In the old times a fuschia would certainly have been regarded as arranged for self-fertilization. The flower is pendant, and the stigma occupies the extreme point, with the stamens just above it. See, the ancient would remark, the pollen is situated so as to drop on the stigma. Again, if the ancient had lived to our day, and could see the species we now illustrate, he would get additional evidence. All our common fuschias have pendant flowers. Here is one from New Zealand, Fuschia procumbens, that has the flower erect. See, the ancient would say, just what I told you. The pollen is arranged to self-fertilize. In the pendant flowers the stamens are above the stigma. In this erect flower it is the reverse, the stamens are above and the stigma is beneath, where the pollen can fall down on it. But the moderns discovered proterandry and proterogyny. That is, that in some flowers the anthers mature long before the stigma, or that the stigma was mature long before the anthers discharged pollen, and this gave chances for insects or wind to cross-fertilize flowers in spite of mere position, as these flowers show.

But besides these interesting philosophical questions which this Fuschia procumbens suggests, it is likely to render pleasure as a basket plant. Since its introduction, a few years ago, it has been grown as a pot plant as other fuschias are, to the disgust of all who have attempted to grow in that way. But it is not the plant's fault. It is not its nature. It is a trailer, and must hang down to do well. The engraving we give is from a plant grown in a basket by Haage & Schmidt, the celebrated seedsmen of Erfurt. As we see in the cut the plant is so vigorous in this condition that the form of the basket is scarcely seen through the mass of foliage. We have to look closely to discern the basket and the strings by which it is suspended. The flowers are not brilliant in color as other fuschias are, but when numerous, as they are under the basket treatment, they make a good show. But the reddish black berries which follow, make up for the deficiences in the flower. Altogether, there will be found fewer plants more valuable for hanging baskets than Fuschia procumbens.

FUSCHIA PROCUMBENS.

In the cut the flower is represented on the right, of its natural size, upright as it grows. The berry, of the natural size, on the left.

THE TZITE TREE.—According to the Quitches, an ancient tribe of Guatemala, man was made of a tree called Tzité, and woman of the pith of a reed.

THE ENGLISH SKY-LARK IN AMERICA.—The New York *Sun* tells us that another attempt to introduce the English sky-lark is to be made near New York. Many have been tried during the last fifty years and failed. No one seems to reflect on how these poor birds are to get through a North American winter. Even the English sparrow, with all its hardihood in flocking around dwellings for food, had a hard time this year. Around Philadelphia thousands died. For a time it was doubtful whether all had not been destroyed in Germantown, but enough seem to have got through to start the race again. With field birds total annihilation would have resulted.

EXOTICS AND INDIGENOUS PLANTS.—When the average newspaper man wanders among the mazes of botany, he is very apt to put his foot into it, as witness the following from an editorial in the Philadelphia *Press:*

"One sensible revolution is mentioned which in a country so rich in flora as this might be worthily copied, and that is the substitution of bouquets of exotics by bunches of wild flowers. At a fashionable party recently several ladies carried immense bouquets of dandelions, daffodils, poppies and other common flowers. An economical conception possibly not very kindly received by the florists."

It so happens that neither dandelions, daffodils nor poppies are indigenous—they are all exotics. Equally confused is the editorial on the matter of wild flowers, for the daffodil and poppy are not wild flowers, and have no claim either indigenous or exotic to be classed with our "rich flora." Moreover, we fancy "our florists" would have little objection to a fashionable party trying to do without them in the matter of "poppies," the petals of which fall as soon as the flowers are gathered. Even his poet might have suggested this to the editor had not a manual of botany been among his office books, for are we not told that

"Pleasures are like poppies spread."

Even the use of dandelions and daffodils would not ruffle the kindly feelings of the florists, for during the fashionable season there are not even wild flowers to be had. The florist has to force them, and, indeed, we believe that as much money has been made the past winter out of forced daffodils as out of anything that the paragraph intended to express, under the term "bouquet of exotics."

CONTROLLING THE WEATHER.—In our days when prayers are offered up in the churches for dry weather or for rain, it is not usual to stop to consider whether any one may possibly have good reason for objecting to the proposed change. They did these things more justly in the old times. Under the supposition that there might possibly be some good as well as injury, what was called an insect advocate was provided, and it had a due trial before it was condemned. Professor Hagen has gone over the history of some of these curious cases. We extract the following from his interesting paper:

In the year of the Lord 1479, appeared in the canton of Berne, Switzerland, an enormous number of grubs, and it was feared that the whole crop would be destroyed. Therefore, the Council of the Commonwealth sent a deputation to the Archbishop of Lausanne with the petition to banish the obnoxious creatures from the canton. Of course it is not stated that the neighboring cantons had agreed to receive the grubs, but the archbishop seems not to have considered the incongruity of said petition. He gave an affirmative answer and authorized the priest at Berne to impose the banishment of the grubs, providing for strict observance of the customs and laws. After a prayer an advocate for the people was chosen. He notified the court of his appointment, and proposed the citation of the grubs. On a certain day some of the grubs were brought before the court and their advocate chosen. The priest, followed by a large crowd of pious people in a solemn procession, went to the cemetery, to the fields, to the vineyards and to the banks of the river to serve the summons on the defendant. He delivered the following, at that time, probably courteous address as warning and as citation to the felons:

"Ye hideous and degraded creatures, ye grubs! There was nothing like ye in the ark of Noah. By orders of my august superior, the Archbishop of Lausanne, and in obedience to the holy church, I command ye all and every one to disappear during the next six days, from every place where food grows for man or beast. If not obedient, I enjoin ye to appear on the sixth day, at one o'clock, afternoon, at Willisburg, before the Archbishop of Lausanne."

As some righteous people objected because the citation was not exactly made in the manner provided by law, the case was postponed, and after a lawful citation, another day was named. Then the process began. The advocate chosen for the defendant was Jean Perrodet, a well-known dogmatical and obstinate disputant. Perhaps it will appear somewhat doubtful if the nomination of this advocate fulfilled exactly the demands of the law and custom of the time, as it is stated that Mr. Perrodet had died only a short time before his nomination. Nevertheless, the case and the complaint were read, and as no defender appeared, the judgment was given for the plaintiff. "We, Benedictus of Monferrand, Archbishop of Lausanne, condemn and excommunicate ye obnoxious worms and grubs, that nothing shall be left of ye, except such parts as can be useful to man." The Government ordered its officers to report the consequences of the excommunication. But the saucy chronicler says "that no success had been obtained—probably on account of the sins of the people."

ENGLISH PLANT NAMES.—Mr. Veitch, of New Haven, and Mr. Meehan, of Germantown, in the GARDENER'S MONTHLY, are picking holes in the English-name question, and saying nothing about the manifold absurdities of the Latin nomenclature which is necessary in the present state of our knowledge. As soon as space will permit we propose to have some talk with these gentlemen. English nomenclature, hitherto entirely ignored, has of course many faults and drawbacks, inasmuch as nobody ever took the trouble to systematize it; whereas, the Latin nomenclature is the result of the work of many generations of able men. A very good attempt at forming a native nomenclature, so to say, has been made in a kindred language. It is not at all likely that the English race, who now cover so large a part of the world, and in whom the love of flowers and trees is so deeply rooted, will continue for ever to use, in naming their favorites, a language that is strange to all but a few of them; it is not at all likely that the highest branches of plant knowledge, so to say, will be forever made difficult by a strange tongue.* It is all very well if full knowledge of such things is to be confined to a few only, but we look, in the future, for plant knowledge being made familiar to many. Meantime, and waiting the coming of the reformers, we will ourselves use an English name wherever there is a chance of using a good one. That there may be three or four English names should not deter us, considering that there are often twice as many Latin names given to the same plant at different times. We shall inconvenience nobody by doing so if we give the Latin name too.—*The Garden.*

SCRAPS AND QUERIES.

DOUBLE RUE-ANEMONE. — With some double flowers of Anemone thalictroides, H. C. K., Tolona, Mo., writes:—"I have sent you by mail a double wild flower, found growing among the single varieties which grow very plentiful on our white oak ridges this time of the year. I would like to know the name of flower sent, and how to increase the number of plants of this double variety; if it will grow from seed, or from the roots or bulbs, the plants having small bulbs like Ranunculus bulbs."

[This pretty plant is occasionally found double in a wild state. It is propagated only by dividing the small bulbs.—Ed. G. M.]

PRITCHARDIA GAUDICHAUDII.— A correspondent kindly says:—"I see an inquiry about Pritchardia Gaudichaudii in May MONTHLY. It is quite a common palm in choice collections, under the name of P. Pacifica. Such, Hovey and others have it for sale. It is a native of the Sandwich Islands."

To this information Mr. Sereno Watson adds: "The Pritchardia Gaudichaudii, Wendland, is a Sandwich Island palm, first described by Martius as a Livistona."

CAROLINA JASMINE IN TEXAS.—A. R. says:—"Mr. James Greig, Hockley, Texas, offers me Gelsemium nitidum, which you rank in your "Native Ferns and Flowers" synonym to Sempervirens, and doubt its reaching the Southern States from Mexico by the overland route, as it does not appear to be found in Texas. Mr. Greig calls it "indigenous," and we thought to inform you, as a botanist, of this offer since you might wish to get more information from the gentleman in question that might prove of interest for your future valuable writings, which we follow up with much pleasure."

[A lady correspondent has already noted the occurrence of this plant in Texas. Though in a political sense the statement that the plant does not grow in Texas is incorrect, the main idea as intended by the passage from "Flowers and Ferns of the United States" is correct, for both localities now recorded are at no great distance from the Louisiana line, and there is still a huge district of territory between it and Mexico, so far as yet known.—Ed. G. M.]

COCOANUT FIBRE REFUSE.—The English periodicals on gardening are much engaged in recommending the refuse cocoanut fibre for pot plants, and even for grass lawns. It is employed with charcoal intermixed, with great results as to rooting. Will "Scraps and Queries" tell us if it is to be had in America, and where, &c.?

W. W.

[We suppose cocoanut matting is made in America, and that the refuse could be had, but we do not know where.—Ed. G. M.]

SCOTCH BROOM.—J. P., Paterson, N. J.—The green branches, with yellow flowers, wild in Holland, and called there "Bram," is the Genista scoparia, known here as "Scotch Broom."

LITERATURE, TRAVELS AND PERSONAL NOTES.

COMMUNICATIONS.

NOTES AND QUERIES—No. 25.

BY JACQUES.

The Electric Light brings insects in such numbers that it proves a great nuisance in the Paris restaurants; they tumble into the coffee and the ices, and give trouble not heretofore thought of. So for every increased luxury there is a price to be paid.

Gold Fish.—A single German breeder of gold fish raises annually 300,000. He employs fifteen laborers, a night watchman, and a book-keeper, besides the men employed in his salesrooms in Berlin. All these persons earn a good livelihood.

Poor Water.—The water of the river Assinniboine, which will be wanted by the rising city of Winnipeg, contains too much sulphate of magnesia.

Mulberry leaves.—The small economies of the European peasants are illustrated by the trade in mulberry leaves. They are purchased by people who have silk worms and have not the means at their homes for feeding them. The leaves are sold by weight in the market, and to select what will nourish the worm best is known to experienced folk, who know that as the trees grow older, the leaf gets smaller, and that it is the small leaf that contains the most food. Some hire a few trees at about a dollar and a half a year and peddle the leaves. The scouting to obtain small leaves reminds one of the old crone in our own markets hunting for the most profitable scrap of meat.

The Dog's Capacity.—The most striking article on the senses of the dog will be found in the *Gentleman's Magazine* (London) for September, and it is by a lady. She says: "How can we account for so much potentiality of intellect in the dog, who has no special organ of touch like the monkey's hand or the elephant's trunk? I believe we must take refuge in the sense of smell. This sense is of so little intellectual importance amongst human beings that we are apt to overlook its immense value to the lower animals; but it plays a large part in the consciousness of our dumb relatives. We cut open the head of a dog, and we find a large and developed optic centre, much the same as man's; but we also find a very big and very important olfactory lobe. While sight supplies us with distant information, it is smell that serves the dog."

English gardeners are amusing themselves by hybridizing the pitcher plants (Nepenthes), and twelve varieties have already resulted.

A recent writer points to the great value of the wood of the Matai (Podocarpus spicata) of New Zealand. A tree that had been buried three hundred years was found to be sound and fresh. An inspection of the hard wooded trees of Honduras and Cuba results in the belief that if wanted we have a grand resort. In making an inter-oceanic canal, it is to be expected these sources will not be forgotten.

Cocoanut fibre plays a distinguished part abroad, both in gardening and mat manufacture. Can any one tell us whether the thousands of cocoanuts brought to this country are similarly utilized?

Well may Charles Reeve, of Baltimore, say in the *Scientific American:*

"*Man is born without any knowledge* whatever, and yet he has the capacity to attain the wisdom of the highest angels, and light is given in proportion to his power to receive and appropriate. Within the past one hundred years a greater flood of light has been poured upon the earth than has fallen during any ten centuries since its creation. What tongue can tell the progress of the next golden cycle?"

Tin has been discovered in Maine, and the work of getting it into commerce will soon begin. If successful, this metal will prove of more value than gold.

A gentleman wishing to compliment a lady friend, sent her an artificial branch of elegant orange blossoms on Christmas day. She returned the gift with a basket of fine fruit on New Year's day, and pretended in verse that they were grown from the said spray. He returned the basket with the following:

Your oranges grow
So well under snow,
I hope you'll continue the culture;
Having cut down your maples,
Now turn in and raise staples;
May they all be as fine as the sample,
For taste and beauty they really are ample,
And for such your neighbor is surely a

VULTURE.

A correspondent asks if the Cedar of Lebanon is hardy near Philadelphia? Yes, perfectly so, if slightly protected by other trees. Two of the writer's planting "long ago" are now bearing beautiful cones; but they are very near their northern limit. How strange that we should see so few.

REMINISCENCES OF A VISIT TO THE LATE DR. DARLINGTON.

BY PROF. S. B. BUCKLEY, AUSTIN, TEXAS.

The 24th of May, 1858, I went on the cars from Philadelphia to West Chester, Pa., distance twenty-four miles, to see Dr. Darlington, then one of the oldest botanists in the United States. He told me his age was seventy-six, and that his botanical labors were done.

I met with a cordial reception, although I had never before seen him, but we had corresponded and exchanged plants. He told me that I was the last one to whom he had sent botanical specimens. He was President of the West Chester Bank, and Townsend, another botanist, to whom Sir Wm. Hooker had dedicated a genus, had been its cashier for more than thirty years. It was remarkable to have two botanists, both of whom had genera named in their honor, in one bank; for bankers rarely give much time to scientific pursuits. There was a likeness of each genus (the Darlingtonia and Townsendia) painted in fresco in the bank over the doors of the president's and cashier's rooms. The bank was a beautiful marble structure of the Doric order.

Dr. Darlington walked with me to the Marshall Square, named in honor of a botanist whose farm was about four miles from the village. He was a contemporary of the Bartrams, and he, like them, cultivated many of our native trees and shrubs. The genus Marshallia was dedicated to him.

Dr. Baldwin, the botanist, was also a native of West Chester. He died many years ago, at Franklin, Missouri. For him the genus Baldwinia of Nuttall was named. A few years before I had been on a botanical tour in Florida, and when there I was sick with a fever at the house of a good old Spanish lady, who cared for me tenderly. She told me that a botanist named Dr. Baldwin had boarded at her house several weeks when collecting plants in Florida. She said he was one of the best of men. I believe she took extra care of me because I was also a botanist. This was at Pilatka. The memoirs of Dr. Baldwin, prepared by Dr. Darlington, had recently been published at the time of my visit to West Chester, to which we will now return.

From the top of the Reservoir in Marshall Square we had a fine view of the surrounding country of rich farming lands in a good state of cultivation. We called on Joshua Hoopes, an old and enthusiastic botanist, who had endeavored to have specimens of all the trees and plants of West Chester in his grounds. Dr. D. told me that he could never persuade his friend Hoopes to make an herbarium. My visit awakened the enthusiasm of Mr. H. He told me that if I would prolong my visit he would go with me into the country and show me some rare plants. He urged me to stay to dinner, but Dr. D. had told his daughters that we would dine at quarter past one, hence our stay with Mr. H. was necessarily short. Dr. D. was a widower, living with his two daughters. After dinner, the daughters gave us music on the piano, accompanied with the voice. Among others they sang a song in German.

The Doctor advised me by all means to visit the Bartram Botanical Garden near Philadelphia. He gave me a letter to Dr. James, of that city, requesting him to accompany me, which was done.

Dr. Darlington showed me specimens of the Darlingtonia Californica, Torrey, a description of which, with a plate, had recently been published by the Smithsonian Institution. He told me that he would rather have that genus named after him than have a marble column one hundred feet high on the Place Vendome at Paris. The Darlingtonia is a fit monument to his memory. Being one of the most singular and beautiful of the "Pitcher plants," it is a favorite in cultivation, and thus it will ever be. Dr. D. might well have said as did Horace, the old Latin poet, "*Exegi monumentum.*" Yes, Dr. Darlington's monument is more durable than any of marble or brass. It was made by a more skilful Workman than the human race has ever produced.

Dr. Darlington has done much to create and form a taste for the study of natural science at West Chester, by talking, writing, lecturing and founding there a Natural History Society, in whose rooms were good collections of minerals, shells and curiosities. The Doctor had also placed his herbarium in an adjoining room, saying it would belong to the Society after his death. His influence has brought, and will bring.

blessings to thousands living, and who will live. It has made West Chester a very desirable place of residence to all who value mental enjoyments more than physical and animal gratification. As I was about to leave at 3 P. M. the Doctor gave me his photograph, and the new edition of his Flora Cestrica.

ADVICE TO YOUNG MEN.

BY W. A. M., PHILA.

Young men stay in the country. Do not think of coming to a large city, if you wish to be happy and prosperous. I have experienced both and say that there is more real happiness in one day in the country, on the lawn, in the garden, on the farm, than you would find in a city in a year.

You will say the work in the country is laborious; but if properly systematized, with improved machinery and implements, it need not be. Nearly everything is done by horse power. You will be happier and richer ten times over, in the not very long run. So take my advice young man, stay in the country;—if you can.

EDITORIAL NOTES.

THE BARTRAM GARDENS.—It is with great pain that we record the fact that an effort to save the trees, garden, and residence of John Bartram from destruction has utterly failed. By the will of Mr. Eastwick, the property of some one hundred and sixty acres is to be sold, and the proceeds divided among his children. The executors offered the property for sale as a whole or as a part. A wealthy citizen of Philadelphia came forward, and authorized the writer of this paragraph to buy the old garden, enclose it with a neat iron fence, and arrange with the city of Philadelphia to accept it as a large public square, conditioned only that none of the leading memorials of John Bartram should ever be disturbed. The executors named $3,000 per acre as the price they had been asking for portions of the estate. On this basis rough surveys of the old garden were made, and various preliminary work in connection with the probable acceptance of the gift was done. The purchase was considered as made, next to a certainty, when notice was given that the heirs did not consider it was to their interest to sell the ground for this purpose.

This information was given by the writer of this to a leading Philadelphia daily, with full permission to use the information in any form desirable. A courteous letter from the editor, thought it undesirable, "lest it might be thought to reflect on property-owners for deciding what they prefer to do with their own." We wish to convey no such reflection. But we do think it is a matter of information which the public has a right to know, that there was a generous citizen ready to do a very liberal public act, for which he would have received the thanks of the whole intelligent world, had the opportunity of consummating been afforded him,—and we think, further, it is due to the good name of Philadelphia that it should be known that these extremely interesting relics of the early history of botany and gardening on our continent were not swept away without an earnest effort to save them.

For this reason, notwithstanding the opinion of our editorial friend, which we respect, we feel justified in giving the information here which was declined for his own paper.

THE GREAT WEST.—How strange the predictions of public men seem but a few years afterwards. It is not long ago that General Fremont and Senator Clark laughed at the idea of such land as that of Kansas and Nebraska ever being worth anything. When we see the untold wealth of these States now, we can scarcely give too much praise to those who in spite of the dampers of eminent men, threw their lives and fortunes into the reclamation of these supposed useless lands. These lines are penned after reading in a Western paper a sketch of the services of Governor Furnas, of Nebraska. He went out as a settler in 1855, stuck to it through thick and thin, till he became Governor of a noble State he was told would never be good for anything. The good old gentleman was nearly ruined in the grasshopper times; but all who knew of his eminent services to the State will be glad to hear that he is slowly re-prospering.

ILLEGIBLE WRITING AGAIN.—Some one from Brocton, New York writes to the Editor, and requests the "special favor of a reply." The Editor cannot promise to communicate personally with correspondents, or otherwise than as an Editor in the editorial columns. This seemed an exception, and a letter was written in reply, when it was found that the signature could not be

puzzled out. As a last resource the name was cut out and pasted on the envelope; but even the people in the town where he lived could not guess at the name. It was returned to the writer, and all this precious time lost. What is the use of people writing like that?

GEOGRAPHICAL LESSON.—European writers on gardening frequently make curious geographical statements. In an article on Picea Douglasii which appeared in a leading French magazine recently, the "Rocky Mountains" are placed in "California."

EUPATORIUM ANGUSTIFOLIUM.—"Why not save five months time, trouble of watering and potting? Instead, plant seeds in September, with the same result." If read in this way, the author's intention at p. 137, of May number, would be more clearly expressed.

LITERARY THEFTS.—Our publisher calls our attention to an agricultural paper, which "continually steals boldly and unblushingly from our pages;" of course the Editor has noticed this also, but we try to soothe the publisher's troubled soul by reminding him that wherever there is a full corn-crib, rats will flock around, and a stray chicken pick out a grain or two between the bars, in spite of all the owner can do. It is hardly worth while bothering with these vermin. Those who happen to read both papers despise the thief, and those who do not read ours and do read the others are to be pitied.

OH! WHAT A NAME.—It is *Hibiscus rosa sinensis cruentus miniatus flore semi pleno* according to the Belgian *Horticultural Review*. A few hyphens might be used to shorten the apparent length, but we give it just as it appears in the magazine quoted. After this we might sigh for an English name, only that we may remember that "Bold-Robin-run-in-the-hedge" is not much better.

CHARLES M. HOVEY.—The *Rural New Yorker* of April 23, has a portrait and sketch of the life and services of Mr. C. M. Hovey. He was born at Cambridgeport, Mass., on the 26th of October, 1810. Quite early in life, he and his brother started a small nursery, and in 1834, the seed business in Boston. In 1840, the ground for the present nursery at Cambridge was bought. Mr. Hovey has always been fond of improving fruits and flowers. Camellias, lilies and strawberries especially, have made his name famous. Hovey's seedling was raised from seed sown in 1833, and was the first solid result in this direction. Hovey's Magazine of Horticulture long the only and very worthy representative of American Horticulture, was founded in 1835, and which he edited with marked ability for thirty-four years. He was President of the Mass. Horticultural Society for three years, and the famous Horticultural Hall, costing $104,680 was built during his presidency.

Mr. Hovey, though now in his seventy-first year, is still hale and hearty, and in the great gathering at the pomological meeting this autumn will receive the congratulations of hundreds from many parts of the country who have been benefited by his many years of disinterested labor in their cause.

BOTANICAL COLLECTORS.—Mr. and Mrs. J. C. Lemmon are off among the Santa Catarina mountains of Arizona. In a recent letter to the *Pacific Rural Press* Mr. Lemmon says: "We packed ourselves (wife and I) with blankets, provisions, botanical paper, etc., at once and started for the distant mountains, toiling along amidst the hot sand or over the numerous hills, beset with thorny mesquite bushes or with the ten-times-more-to-be-dreaded cacti, with keen, barbed, stinging needles. O! how we have been punished whenever too hasty or heedless.

We have established a temporary camp in a cave near a little spring at the very base of the highest peak of the mountains, and often visit it two or three nights in succession. From this secure retreat from prowling natives we sally out early in the morning packed with botanical portfolios, food and water for the day, and at once proceed to climb the rugged steeps, contending all the way against the thorns of the mesquite, the bayonets of yucca and the fiendish needles of cacti, each of these terrible defensive plants being found clinging to the very pinnacles of these mountains, as if guarding vast treasures.

After a long day of weary, painful climbing, we retreat to the cave and pass the night. Next day we must rest and dry out our plants gathered. The second day we climb again, and so the rare or new plants of the mountains of the Santa Catarina are being gathered. Thus are your late Oakland citizens rusticating and enjoying themselves, while adding now and then a new plant or a valuable fact to the common stock of knowledge.

J. C. SIDNEY.—Mr. Sidney was not only famous as an architect, but had considerable taste in landscape gardening, and was well known in both these professions, not only in Philadelphia, but in many parts of the United States. When Fairmount Park was first projected, plans for its improvement were advertised for, and among a large number of skilful competitors, Mr. Sidney's were selected for the first premium, and he was subsequently charged with the execution of his plans. The east portion of the Park, and one of its most beautiful sections, is mainly his work, though through the many changes in management since his time the original plans have been somewhat modified. Mr. Sidney fell from the roof of his house to the street, on the 26th of April, and died a few hours after, in the sixty-third year of his age.

Mr. Sidney came to Philadelphia from England when a young man, and soon became well known as an engineer and surveyor. His map of twenty miles around Philadelphia was one of his earlier works. He was also Chief Engineer in the survey and construction of the Chestnut Hill Railroad.

Mr. Sidney's death affords a lesson of how soon a man's brilliant services may be forgotten by a whole community. Few men possibly had more influence on the architectural and rural beauty of Philadelphia in the very recent past than Mr. Sidney, but so far as we know, the daily press of Philadelphia passed over his sudden death in a few lines notice, as in the case of one wholly worthless to the community:

"An inquest was held yesterday by the Coroner in the case of James C. Sidney, aged sixty-two years, the well-known architect, who, while suffering from an attack of vertigo on Thursday last, fell from the roof of his house, No. 1422 North Seventeenth street, and received injuries which resulted in his death."

In the earlier numbers of our magazine many excellent papers were published from Mr. Sidney's pen.

A TREATISE ON PRUNING FOREST TREES.—By A. des Cars. Translated from the French by Prof. Charles S. Sargent. Boston: A. Williams & Co.

Professor Sargent has done a very useful work in presenting to American readers this standard work. It affords them the opportunity of knowing all that is best in the practices and speculations of European foresters.

Taking this as an exposition, the perfection of forestry pruning art in the old world, we cannot but feel that when forestry shall be an art in our country, we will far exceed Europe in our results. Trees grow slowly there in comparison with what they do here, and the laws of pruning require different application.

The main principle, as taught in this book, is undoubtedly correct, that by judicious pruning in connection with skillful management, we may often double the value of a tree in the same time; and, if any attempts be made in Forestry on a large scale in our country, something more than merely setting out the trees will be required to make forestry pay. Take for instance a forest of Catalpas. The seedling plant may grow from two to four feet the first season, but always a portion of this first year's growth dies back. The result is that many side sprouts come out and a crooked leader ensues. The next year the growth is very strong, but usually the terminal growth is killed in the second year also, and another crook is formed in the leader. The third and succeeding year the growth does not die back. We know the reason of this in our country. We know that these branches die from evaporation of their juices, and that when the roots are strong and deep, so as to provide for this evaporation the wood does not die. Under these circumstances the correct system of pruning is that which looks to the strengthening of the roots as soon as possible. To this end the forester would let the plant grow just as it wants to for a couple of years, provided it should produce as many large healthy leaves as possible. It is the number of healthy leaves that make large, strong roots. When these roots have become strong—at the end of two seasons' growth—the young plant is cut to the ground, and all but one sprout left to grow. Then we may get a strong straight stem, eight or ten feet in one season, and which, keeping its leading bud, will go on and make a straight, clean trunk, which is essential in a good timber tree. European works teach us nothing of this. They know scarcely anything of the laws of evaporation in connection with growth and hardiness. To this day the thermometer is their only guide in judging of the ability of a tree to withstand frosts. They have little chance to learn further, for in their moist climate evaporation need not enter into profit or loss account. Even in the ordinary laws of vegetable physiology as applicable to forestry, their leading authors at least are far

behind. Old exploded notions are still made the basis of practical work. We read here as we read fifty years ago that "sap mounts from the roots to the leaves, and then returns in an elaborated condition to the roots." In America the transpiration of the leaves is enormous. The evaporation of moisture is believed to be about equal to the ability of the roots to absorb. There is no necessity for any return of moisture to the roots. That carbon is returned to the roots, and perhaps other material used in feeding the cells comes in downward direction is true, but this is just as likely to travel downwards in a gaseous as in a liquid state. We refer to this point chiefly to show how little part the transpiration of moisture plays in any system of European forest pruning, but which must be taken note of by the American forester.

Our author tells us further that "certain theorists declare that there is an absolute correlation between the roots and the branches of a tree, and the cutting off of a branch necessarily kills the corresponding root. If such a theory is correct how can the results obtained by cutting back young trees to the ground, or the topping of pollards, by which all the branches are suppressed, be explained?" We fancy no person of any note believes that every root has each its set of leaves which feed it,—but it is no "theory," it is an absolute fact, that roots do die just in proportion as the top is cut away. The reason why trees push up strong when cut back (as in the young Catalpa for instance) depends on other matters not generally perceived by European pruners, though quite familiar to American gardeners.

These criticisms are offered merely to show the necessity for a purely American school of forestry. Of the little work itself, and its many practical hints and suggestions, we have nothing but praise. Not merely the forester, but the grower of a few fine specimen trees will profit by it.

WILLIAMSON'S FERN ETCHINGS.—The London *Saturday Review* has a long and appreciative notice of Mr. Williamson's fern etchings,—and what is rare in notices by the European secular press—a notice very intelligently written. The author of the notice correctly notes that Schizæa pusilla and the common climbing fern, Lygodium scandens, have a strange look to one only acquainted with British species, and might be considered distinctively American ferns.

SECOND REPORT OF THE UNITED STATES ENTOMOLOGICAL COMMISSION.—By Messrs. Riley, Thomas and Packard. Published by the Department of the Interior.

It is pleasant to note that the important work of getting to an exact knowledge of the devastating locusts and other injurious insects is progressing satisfactorily. Ever since the early records of plagues of locusts, until now, the world has rested satisfied that these inroads are helpless visitations, and has sat down under the inflictions to suffer or to starve. Now we proceed with these pests as the detective deals with criminals. If a robbery occurs, all the surroundings are examined, and every trifling fact in connection therewith recorded. The wadding of a gun, a feather, a straw out of its usual place, may throw light on the habits of the intruder, and serve to trace him to his lurking place. So science now takes note of the work of the insect enemy. It is only by an exact record of what it is and what it does that it can be successfully combated. This is the good work the Government is doing, and this book a report of what has been done so far. To many the particulars of the anatomical structure of the locust will be dry reading,—but it is necessary, preliminary work But already much of immediate, practical value has been gained. There are but four species of migrating locusts, and these are indigenous to the treeless, arid and elevated regions from which they start on their predatory excursions. It is something to know just where we may attack them in their headquarters. About every eleven years their most destructive flights occur. The volume is profusely illustrated with maps of breeding grounds, and other locations incident to their excursions.

WESTERN NEW YORK HORTICULTURAL SOCIETY. Proceedings of the Twenty-sixth Annual Meeting. From P. Barry, President.

This was, we believe, the parent of all the State Pomological Societies, and also one of the first; if not also the first to see that pomology could not be well separated from gardening in general. This volume shows it still in the vanguard of usefulness. Many of the papers would do no discredit to a society where even gardening as a fine art is the essential feature. Some of our most intelligent horticulturists are members of this society, and take a prominent part in the discussions, and what they say is reported here.

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Instructions for the culture of many important plants, such as the Rose, have been given at length, and these articles, as in all the Author's previous writings on horticultural subjects, are a plain relation of the methods in use in our own extensive business.

The scope of the work embraces the botanical name, derivation, and the Linnæan and natural orders of all the leading genera of ornamental or useful plants up to the present time, together with all important species and varieties, with brief instructions for propagating and culture.

A valuable feature of the book, particularly to amateurs, is the great care that has been given to obtaining all known local or common names; and as the arrangement of the book is alphabetical, any plant wanted can be thus quickly referred to under either its scientific or common name. An Index is also added, where important plants or modes of culture can be referred to at once.

A comprehensive glossary of botanical and technical terms, together with general horticultural terms and practices, is also given, which will be found of great value even to the experienced horticulturist.

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ROSE GROWERS, West Grove, Chester Co., Pa.

GREENHOUSE HEATING

AND

Ventilating Apparatus.

HITCHINGS & CO.,

[Established, 1844.]

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NEAR BLEECKER STREET,

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Base-Burning Water Heater.
Three sizes. Patented, 1873.

Four Patterns of Boilers,

EIGHTEEN SIZES.

ALSO,

HEATING PIPES,

EXPANSION TANKS,

STOP-VALVES AND

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IN GREAT VARIETY AND AT

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DRIED GRASSES AND FLOWERS,

In great varieties and styles; very suitable for ornamental purposes.

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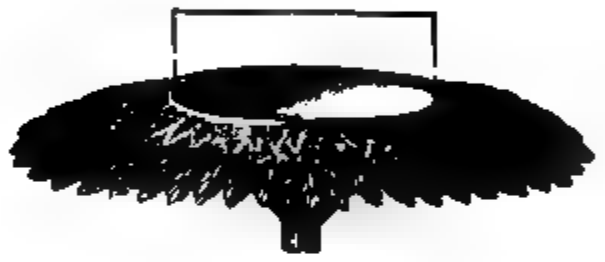

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Send Orders early in Fall. Illustrated Catalogue gratis on application.

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	Per Hundred
CARNATIONS, Pres. de Graw, Peerless, Edwardsii,	$3 00
CALLA, 4 inch pots, $8 00 per hundred, 3 inch pots, $4 00 per hundred, 2 inch pots,	3 00
COLEUS, an immense stock, consisting in part of **Multicola, Pictus, Firefly, Magic, Sunbeam, Marie Stuart, Quadricolor, Empress of India, Superbissima, Spotted Gem, Zebra,** and twenty other varieties, fine plants,	3 50
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ROSE, "GENERAL JACQUEMINOT," fine plants, $6 00, $8 00	and 10 00
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Also VIOLETS, STEVIA, TUBEROSES, SMILAX, CUPHEA, BEGONIAS, IVIES, GLADIOLUS, DAHLIAS, CHRYSANTHEMUMS, PELARGONIUMS, PÆONIES, LANTANAS, IN LARGE QUANTITIES.

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TREE AND PLANT LABELS OF THE BEST QUALITY, AND CHEAP.

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Greenhouses, Graperies, Conservatories, Propagating Houses, Forcing Pits, Public and Private Buildings, Schools, Drying Rooms, and Heating Water for Baths.

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Expansion Tanks, Evaporating Pans, Stop Valves, Cast-Iron Pipe, Elbows, Tees, Branches, Pipe Chairs and everything necessary, of the best material, for Greenhouse Heating.

Smith & Lynch's Improved Ventilating Apparatus, for opening and closing Ventilating Sash, on roof or sides of Greenhouses and Graperies.

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Dried Grasses and Flowers, suitable for Decorations. **Ornamental Bouquets,** for Vases.

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Our connection with European Houses enables us to sell goods at lowest figures. Orders will receive careful attention and prompt shipment. A. Riemschneider's (Brandenburg-on-Havel), Wholesale Catalogue of Roses and Bulbs, mailed free on application to us.

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All the Necessary Fittings for Hot Water Heating Apparatus

VENTILATION APPARATUS OF ALL KINDS.

PRIZE MEDAL AND DIPLOMA AWARDED THIS BOILER AT THE CENTENNIAL EXHIBITION.

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We offer a large stock of finely established Mexican and South American Orchids, (most of which have flowered with us), at the low price of $1.00 each, or $10.00 per dozen for small, well established plants, warranted to give perfect satisfaction. Larger Plants $1.50 to $5.00 each, according to size and variety. They cannot be sent by mail,—only by express.

They comprise Actinetas, Acroperas, Auguloas, Brassavolas, (glauca and the beautiful Percatorea, or Holy Spirit flower of the Mexicans) Cattleyas, (Citrina, Mossiæ and others), Cypripediums, Cyrtopodiums, Dendrobiums, Epidendrums, (Aloifolium, Macrochilum, Nemorale Majus, Vitillium Majus,) Lælias, (Albida, Anceps, Autumnalis, Majalis, the May Flower of the Spaniards,) Lycastes, Odontogloseums, (Cordatum, Maculatum, Rossii Majus, &c.,) Oncidiums, (Bakerii, Cavendishii, Onthorynchum, Reflexum, Stramineum, &c.,) Stanhopeas, (Martiana, Oculata, Wardii,) Trichopilias and many others.

All Plants Guaranteed true to name, and all are of easy culture. We shall offer in the Spring newly imported plants as received from the Collectors, not established, at 50 cents each, of which due notice will be given. These can be sent by mail. Catalogues free with special prices for any desired list of plants on application to

BENJ. REYNOLDS, Supt.,

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ROSES! GERANIUMS! VERBENAS!

FUCHSIAS! COLEUS! PETUNIAS!

LEMON VERBENAS! LANTANAS!

ECHEVERIA! ETC., ETC.,

A FULL GENERAL STOCK IN FINE CONDITION

SMILAX, and CUT BLOOMS of ROSES, CARNATIONS, CAMELLIAS, ROMAN HYACINTHS, BOUVARDIA, HELIOTROPES, VIOLETS, POINSETTIA, ETC.

FOR THE TRADE. WRITE FOR PRICE.

Wholesale list for January now ready. Mailed Free to the Trade on application.

W. L. SMITH, AURORA, ILL. j12

The Pocklington Grape

Is a seedling from *Concord*, and was raised from seed by Mr. John Pocklington, of Sandy Hill, Washington County, N. Y. Sandy Hill is well known to be an *elevated, cold, late locality:* the vines there have always proved themselves to be **Thoroughly Hardy,** *both in wood and foliage.*

The vine is a **Strong Grower,** in appearance almost identical with the Concord, **Having Large, Thick, Leathery Foliage,** and, like that well-known variety, never mildews—either in foliage or fruit.

At the New York State Fair, held in Rochester, Sept., 1877, it was greatly admired, and the committee, of whom M. B. Batcham, of Painesville, O., was chairman, pronounced it *the very Grape we have all been so anxiously looking for so long.*

Rev. R. Burnett, President of Fruit Growers' Associat on of Ontario, Canada, who was the other judge serving on the committee with Mr. Batcham, at N. Y. State Fair, 1877, says: "I then formed the opinion that it would turn out a very valuable grape, both on account of its superb quality and its color. I am satisfied if such fruit can be successfully raised from it, as was presented to me and my colleague, Mr. Batcham, that it will soon find a market for itself.

M. B. Batcham, under date of December 7th, 1878 writes: "I would sooner have the control of this variety to-day, if I were a propagator of vines, than any other that has come to my knowledge."

Mr. Thomas Meehan, Editor of the *Gardeners' Monthly,* Oct. 14th, 1879, writes: "I find your plants of Pocklington Grape are growing finely. It is one of the best growers we have. From what I have seen of it, it is a very promising variety."

Bishop McQuaid, of Rochester, N. Y. who has a vineyard of twenty acres, tested the fruit last Fall, 1880, and he expresses himself much pleased with its fine appearance, and says it is a delicious grape, and by far the b st that has come under his observation.

The American Agriculturist says of it: "Of much better quality than Concord; intensely sweet and less of the Labrusca quality in the taste than in the smell. The berry adheres well to the stalks, and has every appearance of being a good keeper. The great size and copious bloom, makes this Grape most attractive to the eye."

"I saw the Pocklington repeatedly, growing at Rochester. It was eatable Sept. 1st; was in its glory Sept. 15th; was still good Oct. 1st, when it had assumed a rich amber hue. While not the best, in any one's opinion, it is a grape the offering of which will give no offence to the most critical authority in the country It is hardy, healthy, vigorous and productive—a grape that will succeed with the Concord."—**Chas. A. Green,** in "Country Gentleman."

"It is undoubtedly a splendid grape."—**A. M. Purdy,** in "Fruit Recorder."

Mr. S. D. Willard, of Geneva, N. Y., w ites Sept. 17th: "Mr. Conover and myself have tested the Pocklington sample carefully, and are well pleased The fact that it is hardy and does not mildew, is certainly a strong point in its favor, and with its very strong habit, I would take chances of selling the fruit, if not as highly flavored as some exquisite sorts."

"The Pocklington is a hardy and healthy native, vigorous and productive; clusters large; berries greenish-white very large; flesh sweet and well flavored; when fully ripe better than Concord."—**Green's** Fruit Grower."

GENEVA, N. Y, OCT. 27, 1880.

This is to Certify, that the First Premium for the best new Seedling Grape, was awarded to the Hammond Nurseries, for the "Pocklington" Grape exhibited by them at the Union Fair held in Geneva, Sept. 21. 22, 23, 1880.

The committee, consisting of S. S. Graves, of Geneva, John Anderson, of Seneca Co., and James Stockstill, of Dayton, Ohio, in making the award, also made the following Report:

Your Committee would call especial attention to the New Seedling Grape exhibited by the Hammond Nurseries, and grown by John Charlton, of Rochester, N Y; the 'Pocklington,' to which they have awarded the premium for the best New Seedling Grape. The bunches are large and well formed; berries nearly twice the size of the 'Martha,' and an *infinitely better Grape.* The pulp is tender and sweet to the centre; color white; growth of vine strong and healthy, ripening its wood as perfectly as the Concord, and like that variety, has thick, heavy foliage, rendering it proof against mildew and disease." WILLIAM W. STACEY, *Secretary*

BOSTON, OCT. 10th, 1880.

"I am much pleased with the Pocklington Grape, and desire to graft an old vine in my vineyard with it. If you could spare me a few scions of about one third of an inch in diameter, I should be glad to receive them, and be happy to reciprocate with anything I possess." MARSHALL P. WILDER.

The following First Premiums have been awarded to the Pocklington Grape: Western New York Fair, 1878. Provincial Exposition, Toronto, 1879 Dominion Exhibition, Ottawa, 1879. Western New York Fair, 1879, Geneva, N. Y. Fair, 1880. Western New York Fair, 1880. Provincial Exhibition, Toronto, [illegible] at many County Fairs.

Marion D. Egbert, of Lebanon, Ohio. in an address delivered before the Indiana State Horticultural Society, at Madison, Sept. 2, 1880, said: "Among the new varieties of grapes that are candidates for public favor, is the Pocklington; that, from what I know of it, and from what is said of it in the East, I cordially recommend it to you as a grape that will, in my opinion, more than fulfil all that is claimed for it."

The foregoing is only a part of the mass of testimony we have in favor of this Grape, and proves that it is only necessary for the public to become satisfied of its merits to secure for it the largest sale of any grape ever offered in this country. It is perfectly hardy, wonderfully productive, and bears very young It has grown rapidly in favor with the leading pomologists of this section of the country, such parties as Marshall P. Wilder, President of U. S. Pomological Society, Ellwanger & Barry, H. E. Hooker, Ex president of Western N. Y. Horticultural Society, and many others having secured vines for their own collections.

It was pronounced ripe by H. E. Hooker, and other nurserymen, who examined bearing vines in this city, on the 6th of Sept. last, and on the 6th of Nov. following we picked perfect specimens from the same vines, which had been hanging there ripe two months, without any signs of dropping, cracking or rotting, which is most a remarkable circumstance, and one of the strongest points in its favor with vineyardists who are raising grapes for market, as they want something that will last on the vine after ripening, so they can dispose of them at leisure. During the past winter it has withstood a temperature of thirty four degrees below zero on Mr. Pocklington's place, without the slightest injury.

Having unlimited faith in the growing popularity of the Pocklington Grape, we have secured the exclusive control of all the stock in the market for Fall of 1881 and Spring of 1882, and believe the demand will justify the outlay.

Orders for this grape will be filled by mail or express prepaid, on receipt of the price $2.00 each, or $20 00 per dozen.

GEO. A. STONE,

Nurseryman, Rochester, N. Y.

BUSINESS DIRECTORY.

☞ Send for Circular and conditions of insertion under this heading. ☜

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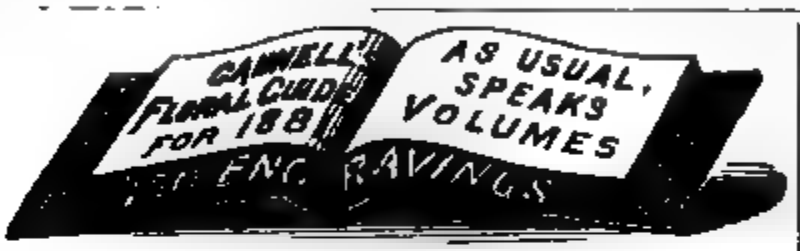

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The Nurseries contain over one thousand kinds of Trees and Shrubs, besides Fruit Trees and Flowers. European, African or Asiatic orders for trees or tree seeds, receive careful attention, and usually give customers entire satisfaction.

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I am importing constantly from those countries, and can offer much lower than the same can be purchased in Europe; and better plants.

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will be in **FLOWER** during **JUNE** and can be seen in **QUANTITY**, viz —**TENNIFOLIUM, PYRENAICUM, POMPONIUM, CARNIOLICUM, PULCHELLUM, MARTAGONS, PARRYI, HANSONI, DALMATICUM, COLCHESTERIANUM, KRAMERI, COLCHESTERI** and many others. After the **MIDDLE** of the **MONTH** our **COLLECTION** of **IRIS KEMPFERII**, and our **ENTIRE COLLECTION** of **GERANIUMS** will be **AT THEIR BEST.**

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For Price &c. Address.

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Price, 1 year old, $1.00 each. 2 years old, $2,00 each.

Black Hamburg,	**Muscat of Alexandria,**
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White Frontignac,	**Cannonhall Muscat,**
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Trentham Black,	**Muscat Blanch Native,**
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We would also call special attention to our stock of Camellias, Azalias, Dophneas, Acacias, and a general collection of **Winter Blooming and Ornamental Foliage Plants.** tap9

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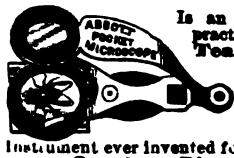

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HORTICULTURIST.

DEVOTED TO HORTICULTURE, ARBORICULTURE AND RURAL AFFAIRS.

Edited by THOMAS MEEHAN.

Vol. XXIII. JULY, 1881. Number 271.

FLOWER GARDEN AND PLEASURE GROUND.

SEASONABLE HINTS.

Our readers must remember that only recently has it been clearly demonstrated that a dead branch on a tree makes almost as great a strain on the main plant for moisture as does a living one. It is one of the most important discoveries of modern botanical science to the practical horticulturist, as by this knowledge he can save many a valuable tree. When one has been transplanted some roots get injured, and the supply of moisture in the best cases is more or less deficient. Any dead branch, or any weak one, should therefore be at once cut away. So in pruning trees at transplanting, the large lifeful branches should not be cut back, as is generally done, but the weak, half-dead ones that are usually left should be the ones to cut away. The large, stout ones are reservoirs of sap, which the plant needs; the half-dead ones draw on these reservoirs and contribute nothing of their own. It has been found that deciduous trees can be transplanted easily all through the summer season by simply cutting out all the weak or miserable wood and leaving a few main branches with their foliage.

The lesson from these facts may be of use at all times in the year as well as in July. Equally valuable is the lesson brought out in modern times by the GARDENER'S MONTHLY in regard to the use of lawn mowers. After their introduction it was found that small creeping weeds often get the better of the much desired grass, and a good green lawn soon became spoiled. Attention being drawn to the matter it was seen that to cut away foliage from a growing plant weakened it, and that grass was no exception to this rule. The little creeping weeds, not cut by the mower, gained strength as the grass lost it. But we must cut grass. The question was, how shall we cut it to weaken it the least? One way is not to cut down to the bare ground, and then after it is cut, give it every chance to get green again as soon as possible. In olden times we left the cut grass on the lawn. It was said it decayed and returned to the earth again. Some of the food we robbed it of. But now we know the importance of giving all the light to the grass possible. The more light the sooner it gets green, and the sooner the green the sooner it strengthens after being cut. So now we do not cut low, and rake up all the cut grass to get a good lawn.

Plants set against walls and piazzas frequently suffer from want of water at this season, when even ground near them is quite wet. Draw away the soil around each plant so as to form a basin; fill in with a bucketful of water, allowing it time to soak gradually away, and when the surface has dried a little draw in loosely the soil over it, and it will do without water for some weeks. This applies to all plants wanting water through the season. If water is merely poured on the surface, it is made more compact by the

weight of water, and the harder the soil becomes, the easier it dries; and the result is, the more water you give the more is wanted. As a rule, plants newly set suffer as much from the soil being too loose as from want of water. If the roots in their every part touched the earth, they could draw water for themselves. It is a good plan, therefore, when a newly planted tree seems to be suffering from water to pound down the earth about it with a heavy paving rammer before giving it water. After being once pounded down and watered, a mulch of old hay or some other non-conducting material will keep the moisture in for the rest of the season. Some complain of injury from mulch. This is because they use strawy manure fresh from the stable. They might as well use brine about the roots at once.

Rose culture is getting a new lease of popular favor; and though we now propagate roses in houses all through the year, the general public who have no greenhouses must do it when they can.

Many persons use the Manetti stock to bud roses on, and it is recommended to "bud them as low" as possible. It is better to bud them a few inches above the ground, for the Manetti will throw up suckers which, if left, will kill the rose, and they are better detached when we can see a little stem.

When people will have new roses at the lowest price, or where much wood is desired for propagating purposes, or where extra fine flowers of weak growing kinds are desired, budding on the Manetti is all very well, but it is all very bad to use the Manetti for the general public. Practically, the bed of choice grafted roses becomes all stocks in a few years.

In budding, select strong, healthy shoots, and let the buds to be used for the inoculation be a little in advance of the stock. Works on roses mostly still keep up the recommendation originally copied from English works to "take out the wood" from the bud—but no American operator does it.

If you have more varieties than you care for, some of them poor, bud the rejected ones with the better kinds.

Scarce kinds of roses may be propagated this month, by eyes of the unripened wood taken off just after flowering, and set in sandy soil in a shady place. Cuttings from shoots grown in partial shade root better than those matured in the full light.

COMMUNICATIONS.

ÆSCULUS CALIFORNICA.

BY T. S. PRICE, KINGSBURG, CAL.

No one traveling along the foothills of our mountain ranges in spring will fail to remark the bright green color of our common California buckeye, nor to note the light rose tint of its blossoms. One of the first to bud and leaf, it is also one of the first to catch the eye at the opening of spring. It is somewhat remarkable that the Æ. Californica is not more extensively cultivated as an ornamental tree (or, perhaps, I should say shrub) in our landscape collections. True it supports its bright green color but a short time, but its beauty for this short period, when most other deciduous trees are so bare, will surely compensate one for the labor expended on its planting and culture. It is propagated from the seed, and flourishes best in a gravelly soil, such as is found in the foothills of the Sierra Nevada and Coast Range mountains. The nut, though considered poisonous in its crude form to both man and beast, is largely used by the California Diggers as food.

BERMUDA LAWN GRASS.

BY G. ONDERDONK, MISSION VALLEY, TEXAS.

In the May number of the GARDENER'S MONTHLY the question is asked if any one has tried close clipping of Bermuda grass. This grass will bear any amount of clipping. I have been acquainted with it in Southern Texas for thirty years; have noticed it in every extreme of drouth and moisture, of cold and heat, of care and neglect; have seen it used as meadow, pasture, lawn, and even as a grazing ground for poultry; have seen it kept at full height, subjected to every degree of clipping by the mower; used as pasture for cattle, sheep and horses, and even kept quite close to the ground by the daily grazing of poultry, and I have never seen it show any sign of injury. I planted a plot twenty-eight years ago for a lawn. The site was abandoned four years afterwards and the Bermuda left to contend for itself. All kinds of stock have had free access to it. And now this old deserted lawn is the same bright green spot that it was a quarter of a century ago. Surely in a climate where the winter will not kill it there can be no superior to Bermuda for a lawn nor for pasture. It cures too slowly for a good meadow grass. Has this grass been tried in the North?

GARDEN SCIONS.

BY CANTAB, BOSTON, MASS.

VIII.

Hybridising pitcher plants.—"Jacques," page 189, speaks of what English gardeners are doing in this way. The finest set of hybrid Nepenthes I ever saw was at Such's Nurseries, South Amboy, N. J., and some of these same hybrids are named, figured, described and sent out by English nurserymen. But in no case have I seen the credit given to the raiser, namely, Mr. James Taplin, of Maywood, N. J., and who was for years manager of Mr. Such's place. Certainly Mr. Taplin is an Englishman, and one of the best practical gardeners who ever came to America, but the work he does in America we will claim as American.

Correction.—Read *Senecio pulcher* instead of "pulched," as printed on page 166.

The Edelweiss.—It defies me to find the intrinsic beauty of this little plant, either as regards specimens of it grown on the Alps or in the garden. In beauty it does not begin to compare with the gentians, pinks and saxifrages of its mountain home. As a pretty alpine it is unworthy of garden care, but as a botanical species or curiosity, or on account of its being the notorious Edelweiss, some may like to grow it. It is perfectly amenable to garden cultivation. Miss Hunter, page 56, mentions a seedsman in England who sells seed of it. The first American catalogue I look into is Peter Henderson's, and here I find the Edelweiss figured and described, and seeds of it advertised. Several European seedsmen advertise its seeds, and Ware, E. G. Henderson and some others grow plants of it for sale.

Antennarias and Gnaphaliums.—Miss Hunter is more sanguine in her hopes for improvement in the flowers than I am. But one of the prettiest features in artificial alpine gardening is produced with Antennarias. A mound, waved, unshapely and lopsided, as nature may suggest, is raised to represent a miniature mountain, and its cap or crest thickly carpeted with Antennaria tomentosa and dioica in imitation of perpetual snow. The snow line is uneven, and beneath it comes a belt of glittering gems. Saxifrages in variety, tiny Gentians, Dianthus alpinus, Silene acaulis, and others as appropriate, till round the base stronger or sub-alpine plants are used.

Coleus Pharo.—Your correspondents have a good deal to say about the new coleuses. Let me say a word for Pharo. I have twenty-four kinds of new coleuses which for want of room are wintered in three-inch pots. Some of them were so pretty that I arranged them here and there among the flowering plants in a dull, close conservatory. After a few weeks' stay, with the exception of Pharo, all lost their brilliance, and many of them their lower leaves. But Pharo appears rapturous throughout, brightly colored, stocky and substantial, its crimson and yellow leaves appearing among the other plants as pretty as blossoms. Glory of Autumn is, under favorable circumstances, the most brilliantly colored plant I know of. Some of the others are very "washy," but for the purpose I most desire them—winter effect—I would not exchange Pharo for the whole lot of them. Spotted Gem does well out of doors around Boston.

The Past Winter in England.—The Rev. Henry L. Ellacombe, of Blitton, in a recent letter speaks of the past winter there: "It has been a most destructive winter here. Many things never touched before have been injured now. I have a fine specimen of Photinia which has stood uninjured for years, but this year it seems to be killed to the ground; yet magnolias are not so much injured as I have seen in other years. Everything is more than a month behindhand. One curious effect of the winter is the way in which evergreen plants have been stripped of their leaves. The conifers have suffered most in this way, and just outside the window of my library where I am writing, is a fine specimen of Mahonia fascicularis with scarcely a leaf on it, but I don't think it is otherwise injured."

EDITORIAL NOTES.

GARDENING IN DENVER.—It seems but as yesterday that Denver was a desert waste. But the evidences of high civilization crowd before us. Here is Mrs. Witter's Catalogue of the "Denver Floral Gardens"—"floral ornaments and designs of the choicest flowers" being among the specialties. It is not much over ten years ago when the writer of this was regarded as overnice in his adornments, because of the appearance of his "biled shirt."

CATTLE AT LARGE IN THE STREETS OF DAYTON, OHIO.—The paragraph recently inserted in the GARDENER'S MONTHLY was discussed at a recent

meeting of the Montgomery County, O., Horticultural Society. The conclusion seemed to be that the State law is broad enough to cover the whole ground, and all that is lacking, is simply the necessary nerve to enforce it, which the unofficial citizen can do if he wants to.

JAPAN MAPLES.—According to the *Rural New Yorker*, the Japan maples tested on the grounds of the editor "have not proved hardy during the past winter." In the vicinity of Philadelphia the numerous varieties show so much sameness of character that only one kind may be said to be popular—"Acer Jap. atropurpureum," as it is popularly called, or Japan blood-leaved maple. We have seen, perhaps, four hundred of these this spring without knowing of one to be injured. Passing along in the street-cars through Germantown, one may now see a pretty plant, some three feet high, on the grounds of the editor of the *Germantown Telegraph*, in full, healthy leaf, after total exposure all winter. On the writer's grounds is one five feet, also wholly uninjured, though standing alone on a very exposed place on the lawn. We fancy the experience noted by the *Rural New Yorker* is exceptional.

BERMUDA GRASS.—The *Rural New Yorker* says the Bermuda grass has been found a good lawn grass as far north as Augusta, Georgia, by Mr. Berckmans. We should hardly suppose it would be evergreen much further north than this.

THE EVERGREEN COTONEASTERS.—These just now look fresh and cheerful, while many of their associates are bare. Whether for planting in shrubberies, for covering sloping banks, or, in the case of the smaller kinds, for planting on rockwork, or even on a lawn, a fine mass of the Cotoneasters is really charming, and they will succeed in positions too shady for most shrubs. The principal kinds are C. buxifolia, the strongest grower in this section, and one which forms a spreading bush of from six feet to eight feet high, with neat Box-like foliage of a fine dark green color. C. rotundifolia.—This differs from the last in the arrangement of the branches and leaves, which are disposed in a flat frond-like manner, bearing some resemblance to that beautiful Chilian shrub Azara microphylla. It is also of much smaller growth than C. buxifolia, being in that respect intermediate between that species and the following. C. microphylla.—This is altogether a charming little shrub, very suitable for rockwork, a character that is also shared by a still smaller variety, viz., C. microphylla thymifolia, while in C. microphylla congesta we have quite a creeping plant, attaining at most a height of a few inches, yet covering a good-sized space of ground. There are many others named as belonging to this section of Cotoneasters in catalogues, but they are not sufficiently distinct to deserve attention.—*Garden.*

EARLY GARDENING IN ENGLAND.—Fruit culture made considerable progress during the reign of Henry VIII., whose gardener, Mr. Harris, planted the first cherry orchards of Kent. Progress was again arrested for a short time by the Parliamentary wars, but only for a few years, and when it recommenced a "spirit of gardening and plantation" was awakened throughout the country by the great improvers of that period, whose names will occur to the reader, including Cromwell, Samuel Hartlib and Evelyn. A large number of foreign plants were brought to this country, during the earlier epoch of horticultural improvement, by gentlemen returning from their travels. The damask rose was brought from Italy by the learned Linacre. Thomas, Lord Cornwall, in the reign of Henry VIII., added to our fruits three kinds of plums. Grindal, Archbishop of Canterbury, brought over the Tamarisk; one of the Carew family transplanted to the family seat at Beddington, Surrey, the orange, which flourished there for a century. We owe to Sir Walter Raleigh two well-known plants. Clover came from Flanders with Sir Richard Weston, in 1645; figs were planted at Lambeth by Cardinal Pole; lime trees at Dartford by Spilman, founder of English paper-mills. The original plants grow there still, 290 years old; but, as one form of the lime tree is certainly indigenous, this particular introduction was not the first, but only the most notorious. The Lombardy poplar was brought over by the Earl of Rochford, in 1758. The first mulberry trees are still standing at Sion House, and were followed, about 1608, by many others, and by a general planting of the mulberry, and a first attempt by William Stallenge to introduce the silkworm.

We shall here bring our narrative to a close on the safe side of the nineteenth century—a period which would need some thousands of columns more than can be spared, even for the briefest summary of the introductions from abroad.—*Gardener's Chronicle.*

NEW AND RARE PLANTS.

NEW SCARLET BOUVARDIA.—As there are but few scarlet bouvardias, Dazzler, raised by Mr. Balchin, is likely to prove valuable to both market and private growers. I have seen it in the nursery of the raiser, and I saw the plants that were exhibited at the meeting of the Royal Horticultural Society, in November last, and I must confess that I am most favorably impressed with it. The growth is rather strong, but very free branching, and the flowers, which are of rather large size, are borne in fine trusses freely and continuously over remarkably long periods. The flowers are of a brilliant scarlet, reminding one of the vivid coloring of that old and useful summer-flowering species, B. augustifolia.—*Gardener's Magazine.*

AN ORNAMENTAL GRASS — BROMUS PATULUS NANUS.—There are few things that have given more interest to the modern flower garden than the introduction of ornamental grasses. Most of the popular ones are tall. Here is a pretty dwarf one, introduced to our notice by Haage & Schmidt, of Erfurt, who give the following account of it: "Quite a new form of this very valuable ornamental grass, differing from the original species not only in its lower growth, being scarcely half as high, but far more in its much more graceful, thinner and shorter panicles. By comparing a panicle of Br. patulus to the one shown in natural size in the figure, the preference of the above-named sort may easily be noticed. This variety has already been cultivated for several years and proved perfectly true from seed. It represents a valuable addition to the assortment of ornamental grasses grown on an extensive scale for bleaching purposes or dry grass bouquets."

BROMUS PATULUS NANUS.

LILIUM PARRYI.—To the New Plant and Bulb Company, Colchester, we are indebted for the first sight of the flowers of this new lily, of which we have heard so long. It is very distinct from any other kind in cultivation, which is a great point in its favor. According to Mr. Sereno Watson's "Revision of the North American Liliaceæ," it is a near ally of L. Washingtonianum, and he places it near to L. rubescens, which is synonymous with the variety purpureum of the former. The specimens sent from Colchester are about two feet high, with a rather slender, erect stem, and narrow lance-shaped leaves not arranged in whorls, but scattered on the stem. The flowers are about the size of those of L. superbum, and are produced singly in an erect manner at the apex of each stem. The color is a rich yellow, clear and bright, with a few dark spots scattered on the lower parts of the spreading petals, which recurve at the tips. The flowers, too, are deliciously scented, similar to Hemerocallis flava. The bulb is said to be small and with jointed scales. It is a native of California, where it inhabits the San Gorgonio Pass, San Bernardino County. This is the first time on record that flowers of this species have been produced in Europe, and we hope soon to see such a beautiful lily in general cultivation.—*Garden.*

SCRAPS AND QUERIES.

PLANTING IN CITY SQUARES.—A New York correspondent says: "The continuous close planting of trees on narrow city streets is objectionable, the best effects being produced by an occasional tree, a group, two set opposite, or a short double close row with open approaches. I shall never forget a street vista in Holland into which was projected, about midway of its length, probably from over a bordering wall, one splendid specimen of tree growth. The line of tall, picturesquely gabled houses, hedging in one side of this lane-like avenue, was unbroken, whilst in the other there were frequent openings through which the sun entered, laying down across the pavement and moving mass of people,

bars of intense light, made very effective by the alternating ones of shadow."

[In connection with this hint, the Philadelphia city squares may be noted, where there are two or three times as many as there ought to be. One-half or two-thirds ought to be cut out. They kill one another and kill the grass.—Ed. G. M.]

A DESTRUCTIVE WINTER IN ST. LOUIS.—A correspondent writes: "Acer macrophyllum, killed to ground; Acer Colchicum, much damaged; Crataegus pyracantha, many plants killed; Firs—Pectinata, Pichta, Nordmans, all much damaged or killed; Pinus—Bentham, Jeffreyi, killed; Pinus—excelsa, Laricio, much damaged; Buxus arborea, damaged, some killed; Quercus aquatica, killed; Quercus Catesbæi, Phellos, falcata, damaged; Trees and shrubs of Japanese and N. China origin, generally safe; Californian and Oregon species, damaged or killed."

AQUILEGIA SEEDLINGS.—Miss M. M. B. R., Washington, N. C., sends a collection of flowers. The petals had all fallen, but were fresh, and with the blue, white, yellow and other shades, showed how pretty had been the mixture. The Columbine hybridizes readily, and many pretty forms may be obtained. Sometimes new forms come from garden seed without any aid from the human hand, and it is believed from crossing the species through insect aid.

THE SNOW-DROP TREE.—J. P., College Hill, O. The specimen sent is Halesia tetraptera, generally called the Snow-drop tree, and sometimes Silver-bell tree. It is one of our most beautiful large shrubs or dwarf trees, and is much appreciated for its early flowering character.

ROSA POLYANTHA.—A friend kindly says: "Again I am in receipt of the grand old GARDENER'S MONTHLY, which is such a mine of botanical treasures that I do not see how any can do without it, even if they care nothing for plants or fruit; for as a periodical of general literature it certainly is superior to all the American publications of the day. I never feel as though I was competent to write anything for the MONTHLY, but in looking over the pages today I find a few things I would like to say, to complete or answer some notes. First I would say in the *Botanical Index* is a short article on "Rosa polyantha" (March number, page 31), from Jean Sisley, which is more complete than the one published in the *Garden*, and your correspondent "Bergen" could procure, either direct or through some of our importing florists, some of the hybrids that promise to be a superior article and indeed seem to be the stock of a new race of roses."

Case's *Botanical Index* is a quarterly, so cheap and so useful that we should hope most of our readers who can afford it, subscribe for it. In this case, we should not want to repeat in our pages what they already see. But in view of the probable importance of this new class of roses, we transfer what Mr. Sisley says of it:

"This species* is originally from Japan, from where it was imported to France about fifteen years ago by Robert Fortune, with several others. It is a very handsome shrub, with slender branches of a light and glossy green, with few and slight prickles, attaining about the height of six feet in one year. The leaves are small, bright green, very pretty, and last very late in autumn. It is very hardy, has resisted since its introduction our most severe winters without any protection. The flowers are of a pure white, small and single like those of Rubus, and bloom in panicles like those of the Lilac, appear very early in spring, last very long, but bloom but once. It requires no pruning, and does better without any. It seeds abundantly, and produces scarcely any suckers.

"In Japan it is to be found on the hills, near the seashore. It has until lately produced no varieties in Japan, except one with semi-double flowers, of the size of single ones, which most likely does not proceed from seed, but by accident. I was one of the first to possess it very soon after its introduction, but paid very little attention to it for several years. But five years ago I gathered a great quantity of seed and distributed it to several of the Rosareans around me. From it a great number of varieties were produced the year following, and but very few like the type, but principally a great number with double flowers like those of the Multiflora, and a few very similar to Rosa Canina; and that without artificial fecundation. This first generation was already very remarkable, as it could not be ascertained whether it was produced by the change of climate, by the fecundation by insects or by the natural law of variation.

"But what was more wonderful and consequently exceedingly interesting for the observer, is that from the seeds of the double varieties of this first generation were produced at the same time in different places dwarf plants and perpetual bloomers, completely different from the original type except by their leaves. The first was obtained by Guillot fils and sent out by him three years ago under the name of Polyantha Paquerette. This was considered a great event.

"This variety is very pretty, very dwarf, and nearly like the Lawrenceana. It is a profuse bloomer. The flowers are pure white, very

* I say species, because it is a conventional term.

double and well shaped, and larger than those of the single type, but smaller than those of the parent.

"The second was raised by Phillippe Rambaux, also from a double variety of the first generation, and sent out by his widow, last year, under the name of Polyantha Anne Marie de Montravel. It is not as dwarf as Paquerette, but the flowers are larger and more numerous on each truss. I have counted on one flower stalk sixty blooms. They are also white, very full and well shaped, and are produced in great number all the year round.

"The third variety of this class, also a seedling from a double variety of the first generation, has been obtained by Mad. Venne Ducher, also of Lyons, and advertised this autumn under the name of Polyantha Cecile Brunner. The plant is in growth intermediate between the first and second, and also a perpetual bloomer. The flowers are double and of a good size for such a dwarf plant, but differ in color from its predecessors. They are bright pink, with a yellowish centre; and it also differs from the two others, as it is the production by artificial fecundation of a Polyantha by a tea, Souvenir d'un Ami', of which it has the fragrance. It is thus a precious acquisition.

"These three varieties will certainly make very good plants for forcing and cut flowers. Several other varieties of this new class have been raised in Lyons and are now in propagation, and will most likely be sent out next year in autumn."

GREENHOUSE AND HOUSE GARDENING.

COMMUNICATIONS.

BRASSIA GIREOUDIANA.

BY B., CAMBRIDGE, MASS.

C. T., inquires for hints on the culture of Brassia Gireoudiana and Caudata. Both are Costa Rican orchids and require pot culture with good drainage and a compost of sphagnum with a little peat intermixed. They need to be well elevated above the surface of the pot, and require but little pot room. Stand them well up to the light in an intermediate house, the glass of course being shaded. Like most Central American orchids they are fond of bright but diffused light. The temperature of the house during spring and summer may run up to 95° dry sunheat, and there must be a liberal wetting down of paths and shelves twice a day, provided of course that the house dries up well in the middle of the day. Moderate ventilation is necessary whenever the outside temperature is above 45° or 50°. Brassias do not require any more moisture at the roots than a Cattleya, and if watered twice a week will do well. After growth is completed they will stand a winter temperature of 50° to 55° at night, and need but occasional waterings. Brassavola glauca is from Mexico and prefers block culture, and even more light than Brassia. It is a shy flowerer, and requires strong growth to produce flowers. Hang it near the ventilator in an intermediate house close to the glass and water it daily, if on a block. In winter water it less frequently and give it still more light, though do not subject it to that roasting process which some growers call "resting" an orchid. It is not a favorite of mine, for there are so many other orchids which exceed it in beauty, and flower far more freely and with less attention. It produces but one flower to a bulb, and will stand a temperature of 45° to 50° in the winter.

Under the head of "cool orchids," W. includes Epidendrum bicornutum. This is misleading, for the orchid in question I have never known to grow except in great heat. I have seen it die off whenever grown in any temperature less than that in which Phalænopsis thrive. If given proper temperature and kept clean of black and yellow thrip it will thrive, but must be well grown to induce it to flower. It is a beautiful orchid, but I would advise amateurs not to waste their money in its purchase when there are so many other orchids that satisfactorily respond to ordinary cultural conditions. Epidendrum dichromum is another "miffy" orchid, though I have seen it grown well far oftener than bicornutum. My own experience with it induces me to say that it thrives better with only a little sphagnum about its roots, and needs to be placed near the glass in a basket or a pan. Mr. Milton in writing of Dendrobium densi-

florum says it is an orchid somewhat difficult to flower. For that matter almost any Dendrobium is a sly flowerer if not rested properly. Densiflorum I have always considered one of the easiest to manage, but it would make but one growth a season, and then stand in a cool house until spring. It will easily stand a winter night temperature of 40°, though must not be dried off like nobile, otherwise it will shrivel. If brought into a warmer house as soon as the bloom shows it will rapidly develop its flowers. I have, however, known growers induce this orchid and its ally Thyrsiflorum to make three growths in a season, and then wonder at their failure to flower. No one can undertake to successfully grow Dendrobiums unless some provision is made for resting them. They need a long period of thorough rest, and Dendrobiums which are rushed into flower very early in the year are generally found, unless carefully handled, to be starting into premature second growth in August just about when they should be going to rest. I have seen scores of that lovely orchid Dendrobium Wardianum ruined by this exhaustive method of culture. Our friend Falconer of the Cambridge Botanic Garden will smile to find himself dubbed "Professor." It is astonishing how easily Americans can tack a handle upon a man's name, and complacently consider that they pay him a compliment when they do so. Still Falconer knows enough to be a professor, and the title isn't so much out of place in his case.

GREENHOUSES OF DANIEL H. BROWN, ST. LOUIS, MO.

BY CHARLES CRUCKNELL, ST. LOUIS, MO.

(Concluded from Page 179.)

At the north end is a rockery planted with ferns and mosses; two large plants of Alsophilga Australis, the silver tree fern Cyathea de Albata, and that very rare fern Cyathea Smithii, Cibotium Menzeisii and Chanunzii, Blechum Braziliensis, the beautiful Lomaria gibba and Dicksonia Antarctica represent the tree family. Fine specimens of Adiantum Farleyense a lovely maiden's hair fern growing in a pan of water, the climbing fern Lygodium Japonicum, Asplenium Belangerii and lucidum, Davallia Canariense and pyxidata, Doryopteris nobilis, the elephant's ear fern Hymenodium crinitum, the elk's horn and bird's nest ferns, Platycerium alcicorne and Thamnopteris Australasica and many others which add a singular charm to this corner of the palm house. Above this rockwork orchids were growing to perfection. The Stanhopeas in baskets were doing finely. S. grandiflora in bloom filled this corner with its fragrance. Over an old stump the pretty Pothos argyrea was creeping; on the top a Cattleya mossiæ was sending forth its curious shaped flowers. This is a lovely spot, and one cannot but admire the cunning skill which planned this corner as the only entrance to the stove house beyond, through the open door of which one gets a glimpse of the new and rare plants growing therein.

To the right as we enter is a pond filled with gold fish in front of which is built a low wall of rocks. At one corner this is built up in pedestal form; on this is standing an elegant palm Thrinax elegans, its leaves hanging gracefully over the water, affording ample shade to the fish below from the sun's rays. This palm has a beautiful stem rounded at the base and covered with an amber colored lace-like net. At the back this rockwork rises several feet; ferns are growing in this wall, their fronds bending down touch the water's edge. On the top is growing a large plant of Anthurium regale, the leaves are a rich velvety olive green color the veins pure white, the young leaves look like burnished gold. The back wall is devoted to orchids and vines. On the front table were a pair of noble Kentias one on each side of a small propagating bed. Several plants of the most graceful palm in cultivation Cocos Weddeliana are growing alongside of its rival in beauty Phœnix rubicola. A dozen kinds of Carludovica. Arecas alba, aurea, Verschaffeltii, speciosa and monostachya; the wax palm Ceroxylon niveum and in fact nearly every palm in cultivation may be seen growing in this collection.

In the centre a hot water tank is built in the ground; over this a table is placed, the whole hidden by crystallized rocks obtained a short distance from this city and called "blossom rocks." Many beautiful conch shells are scattered among the pots giving an air of careless elegance to the whole. This table is devoted to pitcher plants and palms found in swampy bottoms. Most of these palms are covered with desperate looking thorns. The following are of striking beauty: Calamus ciliaris a stately palm, from the stem of which grows thread like filaments two and three feet long covered with minute reversed thorns which fasten

securely to anything within reach; Calamus speciosa, Bactris choetorachis, Livistona Hoogendorppii, Licuala horrida, Acanthrophœnix crinita and the stolon palm Phœnicophorium sechellarum, known also under several other names. The leaves are banded and spotted with dull orange, looking very much like iron rust. The Nepenthes having pitchers were distiliatoria, ampullacea vittata, hybrida maculata, lævis a liliputian pitcher, Rafflesiana and Mechaniana. Dracenas, marantas and crotons blend harmoniously their parti-colored foliage with the palms and the pitcher plants, and present to the vision apicture of oriental loveliness.

LIME MILK FOR SHADE.

BY CHARLES CARPENTER, KELLEY'S ISLAND, O.

In making a wash to shade greenhouses, slack good lime with water, using only water enough to make a paste, and thin the paste with skim milk, and it will last much longer than if reduced with water.

If you warm sour milk or lobered milk just so it separates the whey from the curd, pour away the whey and use the curd to thin the lime and it will stand longer still, so that if the curd is well separated from whey, it will last all summer.

The curd will dissolve in the lime, and thin it more than you would suppose until you tried it. If too thick thin with milk or water.

MILK SHADE FOR GLASS.

BY N. F. F., WAVERLY, MD.

In reply to R. L. B., page 110, April No. GARDENER'S MONTHLY, would say we prefer to use skimmed milk, made of the proper consistency by stirring into it powdered whiting. If skimmed milk is not so easily obtained as buttermilk, I use the latter. If a good shading be required, make thicker and put on with brush. For pits, frames &c. when a light shading is necessary, make sufficiently thin to throw it on with a syringe. All things considered the above is the best we have yet discovered for use as a temporary shading, but for something more permanent good white lead paint daubed on with a brush through a cloth is the only satisfactory way we have yet found.

FUCHSIAS.

BY J. H. PEARSON, AINSWORTH, IOWA.

Every spot around one's home ought to be beautified. No matter if it is a house built of logs or stone you call home, you cannot make it too beautiful. If yours is a little log cabin, cover it with vines, and make it the dearest and most beautiful spot on earth. Flowers have a refining influence, and are elevating to our thoughts and should be cultivated if only a few by every mother in the land. They are indeed the stars of earth.

A reader has asked me to teach her how to treat Fuchsias. I dearly love this flower, and I think that they will find a place in the affections of any one who grows them. So I will begin by telling how I am doing at this season of the year with my plants. Several weeks ago I made slips of all the new growth and rooted them in sand, then I put in two inch pots and they are now growing nicely. As soon as all danger of frost is past, I shall prepare a bed close to the north side of the house in the shade; they do not need much sun, indeed they must be protected from it during the hottest part of the day. Then I will shift my plants into four inch pots, or sooner if need be, and sink the pots a little below the level of the soil in the beds prepared for them. If not well sheltered from the wind, you had better build a lath fence about two feet high around the plants; through the hot, dry weather, they should have a good sprinkling with water about three evenings in each week. They will begin to bloom as soon as they have had time to make the buds, and if carefully lifted in the fall, will continue to bloom until Christmas, and such varieties as Speciosa and Lustre, much longer. When they cease flowering and the leaves begin to turn yellow and drop off, they should have their annual rest. Gradually quit watering them and set the plants down cellar, and only give enough water to prevent their drying out entirely. In about six or eight weeks you may bring them out again, and they will need repotting, and given some stimulants in the shape of liquid manure, when new growth will soon start, and the plants may be treated the same as they were the year before. The Fuchsia makes a splendid pot plant and may be pruned to any desired shape. When the little plant attains a height of eight or ten inches pinch out the center and in place of one, there will be three or four branches grow out. Let their branches make about the same growth, then

clip the points out, keeping the side branches of equal length, or tapering like a pyramid. Or you can clip off all the lower limbs and allow the upper ones to droop over as they are sure to do when loaded with flowers, and you form a handsome umbrella. I think Speciosa is the best variety for this purpose. Get some iron filings or scales of iron from around a blacksmith's anvil and work among the soil, and it will cause your plants to grow vigorously and bring plenty of bloom.

I have more plants than I wish for my own planting, and I will send two or three to any one who will send me stamps for postage.

EDITORIAL NOTES.

STOVE PLANT HOUSES.—The experiment of building a house with double brick walls with a little light through double glass windows, has been so successful in Tower Grove Park, at St. Louis, that Mr. Shaw, the generous proprietor of the Missouri Botanical Gardens, is about to erect one of a beautiful ornamental design on these grounds. We look forward to the time when these houses will be the most popular of institutions. They are cheaply built, and by keeping out the cold, comparatively little artificial heat is required. They keep clear of Red Spider, Scale and Mealy Bug, and come out of winter quarters as good as new. Anything that does not need a temperature of over 45° or 50° will keep in these houses,—and few things need more when they are not growing.

As is well known, Mr. Shaw intends to donate these gardens in the interest of botany and gardening, to public uses forever, after his death. It is pleasant to every one who has ever visited this beautiful spot to feel that so much of loveliness is to endure, and not, as is usual with so much of our horticultural experiences, to be finally swept away by the demand of speculators in real estate.

LILIUM HARRISII.—The following is from the report of the New York Horticultural Society: "W. K Harris, Darby Road, Philadelphia, presents a new lily (Lilium Harrisii), which draws especial notice for its alleged peculiar characteristics. Apparently a variety of L eximium, it differs widely from that species by flowering in a very young state of growth and much earlier than eximium when forced along with it in the same house. Besides its early flowering both in age and season, it has the peculiarity of sending up flowering shoots from bulblets formed during the season of its growth, so extending its flowering season for a long period. These peculiarities greatly recommend it, not only to the cultivator for cut flowers, but also to the amateur, as capable of filling up the period of mid-winter with the always acceptable flowers of this universally admired tribe of plants. Awarded a certificate of merit."

This lily was sent to the Editor, and it seemed to him related rather to L. longiflorum than to L. eximium. Still there seemed some slight difference, and it was sent to Mr. Sereno Watson, who has made Liliaceæ a special study. Mr. W. decided that it was nothing but L. longiflorum. Subsequently a plant of L longiflorum was procured, and both flowered side by side. The leaves are shorter and narrower, and the flower much longer, but though a good garden variety and worth naming, it is specifically where Mr. Watson placed it, and may be called L. longiflorum Harrisii, or Harris' Lily. It may be noted that the plant sent us by Mr. Harris is seeding freely, while the two plants of L longiflorum that we procured to test it, have not seeded. The new one may be therefore but a fertile form of the old variety. There are usually some changes in foliage and flower following these reproductive peculiarities

LILIUM LONGIFLORUM.—It does not seem to be generally known that what is often called Lilium longiflorum in gardens is not Lilium longiflorum of Thunberg, but is Lilium eximium of Courtois. Gardeners often speak of eximiums and longiflorums as if they were the same thing; but if they have them true they are different.

NERTERA DEPRESSA.—This curious plant, allied to the Mitchella repens of our woods, often covers the whole plant with its amber berries. At the recent meeting of the New York Horticultural Society, the secretary says: 'Thomas Tait, Port Richmond, S. I., shows a fine specimen of Nertera depressa completely covered with berries"

DRACÆNA WELLESLEYANA at the May New York Horticultural Society's exhibition.—William Bennett, Flatbush, shows Dracæna Welleslеyana, a magnificent variety of exceedingly robust habit, broad leaves distinctly marked with red; a fine addition to this already beautiful family.

GOOD ROSES.—The report of the New York Horticultural Society says:—"Baroness de Rothschild, Mabel Morrison and Xavier Olibo Roses, magnificent flowers of which have been shown at our past meetings, are now the fashionable roses."

A LARGE STAG'S HORN FERN.—This, the Platycerium alcicorne, is a native of Australia. Among the fine representative plants brought by Mr. Charles Moore, of the Sydney Botanic Gardens, to our International Exhibition, one remarkable specimen deserves more than a passing notice, as it is probably the largest and finest of the kind ever brought from its native woods. The plant is the Stag's Horn Fern (Acrostichum alcicorne), and is fully nine feet in diameter. It was discovered encircling the limb of a tree one hundred feet from the ground, and to obtain it a sailor was sent up, who cut off the limb and lowered it to the ground by means of a rope.

ADULTERATION OF PEPPER.—At a recent meeting of the Delaware Co. Institute of Science, Colonel Willcox spoke of having been in a mill not many miles distant, where cocoanut shells were being ground in large quantities. He ascertained that the powder was in demand for the adulteration of pepper, and probably other spices. Dr. Smith said that years ago he had seen the preparation of potatoes, which he believes was for a similar purpose. They were dried, browned and ground. John Benington said that when a boy in a grocery store in England, a powder was in common use for such purposes. It was called "peedee," but he did not know what it was made of. Probably it was the powder of post which used to be spoken of.

SCRAPS AND QUERIES.

VARIEGATED PLANTS.—Messrs. J. R. and A. Bather, Clinton, Iowa, send us a variegated Fuchsia and a Mock Orange, of which they say: "The Syringa originated as a sport taken from a large bush we have near our house. We have been propagating it for the past three years, and all the plants we have raised retain constantly the same habit and color of foliage as the one we send you, one of many which we have that stood out of doors during the past very severe winter, and are now all in the same condition and have the same colored foliage.

"The Fuchsia also originated with us three years ago, and we have raised hundreds of plants, and they all retain the same variegation and the same strong, robust growth, and free flowering qualities of the first plant. The flowers are double, and of fair size. The corolla is blue and the sepals are crimson. The variegation is even brighter on the older plants than on such sizes as the one we send you. We also send you a plant of Fuchsia Sunray, which was grown side by side with our new one sent you. This will give you a fair idea of the difference between them under exactly the same conditions.

"We claim for this Fuchsia of ours that it is double, and of a distinct variegation, much more free flowering and more vigorous and robust in growth than Sunray or any other variegated variety which we know of."

[We have a very high estimate of the value of the Mock Orange. Silver-tinted plants do not usually thrive in our dry climate, but golden things do, and we fancy this one will be in great demand by tasteful landscape gardeners.

Of the value of the Fuchsia we are less certain. The value of a variegated Fuchsia resides mainly in its foliage. The flower is a secondary consideration. If there never had been a "Sunray" there would be no question of its value then. Still, if as it grows, it shall show any decided difference in the variegation, or if the flowers should aid the variegation, it will be valuable]

CHEAP BOILERS.—W. H. B, Independence, Kansas, asks:—"Please tell me what kind of a boiler that cheap greenhouse contained at a cost of fifteen dollars."

[What are known as "water bucks" can be had at less than fifteen dollars, at the stove stores. The writer once had one in a small greenhouse (50 by 12 feet), which answered pretty well. It was a small, low house for propagating.—Ed. G. M.]

CULTURE OF AMARYLLIS SPECIOSA.—"Seedling," Adams, Berkshire Co., Mass., writes:—"Will some one of your readers, that has had experience, be kind enough to give through the MONTHLY the treatment proper for Amaryllis speciosa and A. Atamsco. State the proper time to re-pot, also if the old soil should be entirely removed or not. Should they have a size larger pot every year, &c., &c.?"

PLANT CULTURE.—"Seedling" asks:—"Is there any book on greenhouse plants that tells what to do, when to do, and how to do? If so, please

give title, price, and state where it ma

[Henderson's Handbook of Plar nearer to what you want than an know of. Price $8.00. May be had at MONTHLY office.—Ed. G. M.]

EPIDENDRUM MACROCHILUM.—"E." a your May number there was an error It says: 'The list can be easily enlar

cluding the beautiful E. nemoralis microchilum (larger lip), which is ' ought to have been macrochilum, microchilum.'"

CYPRIPEDIUM SPECTABILE.—A Utica, correspondent says:—"Mr. Meehan, in a small box, by mail, some flowers pedium spectabile, which I grow exter have in flower now about one hundr pans, each pan having from eighteen

It is not, however, wholly impossible that it might hybridize with a true Amaryllis. There have been instances of what botanists regard as distinct genera uniting together. In this case there is enough of possibility to make it worth trial.—Ed. G. M.]

NEW AND RARE PLANTS.

ARALIA ELEGANTISSIMA.— A beautiful stove plant introduced by Messrs. Veitch of London from the South Sea Islands, with a straight, erect stem, furnished at short intervals with digitate leaves on long foot-stalks, mottled with white on a dark green ground; the leaflets, from seven to ten in number, are filiform, deeply and unequally serrated, and gracefully pendulous. The color of the foliage is a deep green, shaded with brown; the mid-rib of each leaflet is of greenish white, and very distinct. A foliage plant of the first order.

It is regarded as a decided improvement on the beautiful Aralia Veitchii sent out by them. See cut on opposite page.

FRUIT AND VEGETABLE GARDENING.

COMMUNICATIONS.

PEAR CULTURE IN NEW HAMPSHIRE.

BY JAMES M. HAYES, DOVER, N. H.

It has been but a few years since the people of our State learned that the finer varieties of our cultivated pears could be raised here successfully. Formerly the wild button pear was the only variety of this fruit produced. Now upon the clay soils near our rivers the improved varieties flourish well and seem to resist the attacks of disease as well as apples. They have succeeded so well and the fruit is so abundant in plentiful years, that the best varieties bring but a dollar a bushel, and our orchards are increasing and the young trees are coming into bearing so rapidly that some fear the market will be overstocked in abundant years. The blight of which we hear much in other localities has never troubled the pear orchards of New Hampshire to any extent, and the insect enemies of the pear seem to be fewer than those of the apple. Of the varieties grown, the Bartlett—the standard seventy miles south at Boston—seems rather tender here, the trees look stunted, grow poorly, and seem almost as tender as peaches. As a rule those varieties which are of American origin succeed best, although there are many of foreign origin that do well. Among these might be mentioned Flemish Beauty (were not affected by cracking) Louise Bonne de Jersey, Beurre d' Anjou (one of the best) Duchesse d' Angouleme and Rostiezer. Those varieties of American origin which have been most widely disseminated and are best known are Sheldon, Seckel, Brandywine, Buffum, Goodale and Merriam. The first three are everywhere noted for their excellence of fruit, while the last three are trees that succeed almost everywhere, and are noted more as productive varieties with handsome hardy trees than for superior qualities of fruit. Yet if the grower is negligent in the care of his trees, as some always will be, these varieties will produce better results than some others.

WILD GOOSE PLUMS.

BY ISAAC HICKS.

How about the wild goose plums is often asked. All say the trees grow splendidly, but the fruit crop where is it? Oh, the plums are beautifnl, golden and red with a fine bloom. From what I have seen in Western Pennsylvania and Ohio in their wild state I infer they generally are shy bearers. The variety sent out largely from Hoopes and Hance are fine growers and make beautiful second-class trees even if they seldom bear fruit. The wild goose plums raised by our friend Wm. Parry are good bearers and of an oblong shape. Those of W. S. Carpenter from California are very prolific and entirely different in fruit, leaf and habit from any I have seen; some are yellow, one variety pur-

ple, but as Charles Downing says any person that can successfully grow our best grafted plums has no need of trying the wild or chickasaw varieties. A neighbor told me recently of a great success in growing the wild goose plum. They had washed the tree all over with brine, and although only planted four years, they had more beautiful plums than they needed.

RABBITS GNAWING TREES.

BY ISAAC HICKS, L. I.

I have tried various experiments to prevent their depredations on nursery stock for several years past, and find petroleum, in which a small quantity of Paris green is mixed, is effectual. Petroleum, painted lightly on one or both sides, if the tree is from one-half inch to one inch in diameter, has prevented them heretofore from gnawing the bark, but this last winter they did not regard it on one and two year old apple and other trees. But where Paris green or strychnine is mixed in, if they venture, which we have not seen to much extent, they will not come again. A wash of tobacco water, cresylic soap, etc., is good until a rain comes and washes it off. We have tried petroleum on small and large trees, and have not seen any harm to the trees; but we have when we used linseed oil. The bark turned black and it hurt the looks, and consequently sale, of the trees. Apple, pear, Norway maple and linden were their favorites.

SEEDLING APPLES.

BY E. P. POWELL.

I have been much interested during the past year in studying a few seedling apples planted about the first of the century by Dominie Kirkland, then missionary to the Oneida Indians, and the founder of Hamilton College. Happening to own a part of the orchard planted by him and old Sconondo, the Oneida Chieftain, I have been familiar with the fruit as well as the history of these trees. They were raised from seed sown in England, and were transferred to this country when quite young, and were never grafted, at least not in the days of the Dominie. All grafts are of more recent date, and were inserted mainly by my father, John Powell, or more recently by hired grafters. Unfortunately the grand old trees were sawed and cut about twenty years ago in a barbarous way in order to make a profitable job for a young grafting vandal. This has hastened decay so that to-day over half of the trees are either dead or useless. By careful selection of suckers or high side shoots, I have found new tops for several.

What has specially interested me is:

1. The palpable resemblance between some of these seedling fruits and old English apples. These trees bear fruit with an inheritance easily tracked to the Yellow Belleflower. The core, the seed and the shape is unmistakably Belleflower.

2. Of these three two are so nearly identical that I will defy the best judges to separate a mixed dozen apples into their proper piles. I do not think I could do it after my long acquaintance with them. In size, color and all the usual peculiarities by which we separate apples these seem to be identical. One of these trees I own, the other stands further along the hillside. I had named mine the Kirkland, and long supposed my claim to the original tree to be absolute; but here are two trees with almost or quite identical fruit. It is a large apple with open core, small seed, light yellow, mild flavored, very late keeper, growing fine, deep yellow as it ripens. It keeps well till May and June, and is of decided value as a market fruit.

3. The third apple of this trio is very like the others in core and similar in flavor. The color is slightly more of a green, and the season earlier, but a good judge can at once perceive the peculiar flavor of the Kirkland, as well as other family traits. The tree of this variety bears invariably on opposite sides alternate seasons. I don't know of any other freak of this kind except caused by grafting. But here is a staunch old seedling without a graft giving us annual crops on one half of its branches. The dividing bearing line runs nearly north and south.

4. From these and other seedlings, especially one plainly traceable to the Spitzenberg, but a younger tree, I am inclined to think, the tendency is to improve the toughness of the wood fibre. I say only the tendency with a good many exceptions. The wood of the Kirkland is so tough that it may be said never to break with any load, although it is without exception my heaviest cropper.

5. We are certainly losing many very choice fruits from the carelessness or ignorance of those who claim to possess them. The old

seedling orchards are dying out, and with them varieties of apples which will rank with our best.

EDITORIAL NOTES.

No Peach Yellows in the South.—The *Farmers' Home Journal* some months since copied an article written by Mr. Stackhouse, the horticultural editor of *The Comet*, published at Jackson, Miss., in which he controverted the statement made by the Gardener's Monthly, to the effect that the disease known as "peach yellows" existed on the "Jackson route." The writer in the Gardener's Monthly stated that as the train rolled through the country he saw from the car windows evidences of the yellows in the peach orchards along the road. To this Mr. Stackhouse replied in *The Comet* that no such disease as the "peach yellows" is known in the orchards along the "Jackson route."

It seems that the Gardener's Monthly has improperly credited the statement made by Mr. Stackhouse to this paper, and we now call attention to the fact and disclaim the imputation.

The *Farmers' Home Journal* has a high appreciation of Mr. Stackhouse as a practical horticulturist and a cautious writer; therefore his articles in *The Comet* are frequently quoted as valuable matter, and in every instance full credit is given either to *The Comet* or to Mr. Stackhouse, the editor. We regard, therefore, Mr. Stackhouse as the best authority for the statement that there is no disease in the South similar to the "peach yellows."—*Farmers' Home Journal.*

Ripening Melons.—It is said that the Persians draw earth over the fruit at a certain stage, and that the fruit ripening in the dark is improved in quality thereby. It has long been known to hothouse grape growers that the fruit is much improved in flavor by shading the glass as maturity approaches.

The Unlucky Sparrows.—Almost every daily paper we take up has a wail from some sparrow-haunted pen. This is what the editor of the Montreal *Star* has to say about the wail of his constituents:

"And at last the sparrows have become so powerful that they fight among themselves, and the Manitous who brought them here pronounce them a 'nuisance,' like the 'fire-water' which destroyed the Manitous to whom the native songsters used to sing so many years ago. Vengeance has come home to roost. In the early morning the indigenous used to cheer even the Manitous of the sparrows with their little songs, and now the Manitous swear—bad men—at the pale faces of the air because they twitter, but do not sing, and in general conduct themselves like the 'border villians' that they are. True they have killed all the caterpillars in the cities, and eaten many of the worms in the gardens, but yet their Manitous are not happy, for the sparrows make hideous noises in the early mornings, and the Manitous sigh for the sweet singing songsters of other days, and they no longer think those pale faces of the air a thing of beauty and a joy forever."

One of our own correspondents writes: "I don't deny that they have cleared the street trees of Philadelphia of leaf eating vermin and given shade to the city squares where dying trees, bare of foliage, were once the rule; but what is this to me when I can get no peas, no nothing, for the rascals."

New Method of Vine Culture.—Under this title the *Gardeners' Chronicle* has the following paragraph:

"We take the following from an Anglo-Italian journal, which evidently accepts the statement in full confidence. What a pity editors of public journals do not take the advice of their *confrères* of the horticultural press before printing such rubbish. We have seen cuttings thrust into potatoes to keep them fresh; has some hoaxing 'Yank' seen something of this kind and invented the rest? 'A great discovery has been made on the Mojave desert, which seems destined to revolutionize viticulture in Southern California. It has been found that grape cuttings inserted in the trunks of the Cacti on the desert grow and thrive as vigorously as in cultivated land. This fact is of great importance to the people. By the use of a chisel a man can plant a large vineyard in a day, and the vine so planted will climb the Cactus and grow luxuriously without cultivation or irrigation. The dry, hot sands of the desert will afford a fine place for drying raisins. In addition to grapes it has been proved that melons, cucumbers, and tomatoes will grow from the cactus stock, so that the desert may soon blossom as the rose.'"

Remembering the fearful trash of a horticultural character that we have been reading of late in the public journals, the pen was taken to commend the above when we remembered a curious experience of the writer. A sedge grass was found growing, and apparently thriving, out of a potato! Cutting it open it ap-

peared that a stolon of Cyperus hydra, the nut grass of the South, had thrust itself into a potato the fall previous, and after forming a tuber the size of a hazelnut, went to rest. In the spring the tuber grew as if it were in the ground, and the leaves came through on the outside, and the roots fed on the internal structure of the potato. Now it occurs to us, not that the grape or other plants would graft on the cactus, that is to say the cells unite one with the other as graft and stock do, but that it is just possible they might send out roots into the fleshy matter of the huge barrel cactuses of the desert, and thus live for some time. The only difficulty in the way would be that the plants named are known to feed only on decaying vegetable matter, and if they lived at all in the condition described, they could only do so by destroying the tissue, and, as in the case of the potato, the cactus would rot in time. In short we have no idea that the story is true, but the bare possibility that there may be some truth—some fire for so much smoke—leads us to make these remarks. Perhaps a plant has been seen to grow out of a dead or dying cactus.

PLUM CURCULIO.—In the rambles of the writer over the United States he has failed to find any evidence that the wild plums are less liable to the attacks of curculio than other kinds. Trees will often be found with fruit, at other times every fruit is destroyed. In a trip, in 1880, through North Carolina and Tennessee, many hundreds of miles of which were by wagon or on foot, trees of what we took to be Chickasaw plums were frequently met with, and in every case the fruit almost completely "stung to death" It was rare to find a perfect fruit.

We note that a correspondent of the *Prairie Farmer* calls attention to the existence of two puncturers, the well-known Curculio-Conotrachalus nenuphar, and the plum gouger—Anchronomus pruñicida. The *Prairie Farmer* thinks that the escape of plums in some instances may be due to the absence of one or the other of these.

POTATO BEETLE.—The Philadelphia *Press* says: "Burlington's veteran gardener, Nathaniel Stowell, aged 92 years, has discovered and proved the efficiency of green (garden) sage leaves as a thorough preventative of the ravages of the Colorado beetle upon growing potatoes. The odor of the leaves proves too offensive to the bugs and they seek other plants. These pests are more plentiful in this county than usual, and many farmers object to using Paris green, from the growing conclusion that its use in driving away the bugs affects the quality of the potato."

The writer saw a Colorado potato beetle evidently feeding on the turpentine exuded by the growing bud of an Austrian Pine this spring. They evidently have strong stomachs, but we give the paragraph above as mere news.

THE CURL IN THE PEACH.—The following "heroic" treatment is recommended by a correspondent of the *Pacific Rural Press*: "That to cure the curl-leaf, split the bark on the tree in four or five places with a sharp knife, from the ground up as high as you can reach. If done early in the season the tree will soon become healthy and vigorous."

STRAWBERRIES.—At the meeting of the Davidson County (Tenn.) Horticultural Society at Nashville, May 21st, 150 gallons of strawberries were exhibited. As showing how strawberry growing stands in this part of the world, we give the following in full from the *Farmers' Home Journal*:

"*Judges*—W. H. Broadwell, J. R. Roup, J. G. Ogden.

1. For the best two-bushel stand of strawberries, premium $25. Awarded to John W. Morton for stand of "Warrens."

2. For the second best two-bushel stand, $15. Awarded to John W. Morton for Sharpless. In these classes Dr. B. H. Hill exhibited stand of "Glendale," Harwood Bros. one stand "Charles Downing" and one stand of "Kentucky." W. J. Campbell one stand of "Boyden No. 30," or "Eclipse."

3. For best display, two quarts each variety. Premium to John W. Morton, who exhibited Warren, Longfellow, Sharpless, Charles Downing, Crescent, Captain Jack, Monarch and Forest Rose.

4. Two best gallons of any two varieties for shipping, one gallon each. Premium to John W. Morton for Warren and Sharpless.

5. Two best gallons of any two varieties for home market, one gallon each. Premium to Dr. T. P. Crutcher for Longfellow and Cumberland Triumph.

6. One gallon of the largest berries of any one variety. Premium to John W. Morton for Sharpless.

7. Premium of 500 Sharpless strawberry plants, to be delivered in the spring of 1882, for best new seedling not yet placed upon the market. To Dr. T. P. Crutcher for "Belle Meade," a bright red berry of exquisite flavor.

Some of the Sharpless measured over seven inches around, and a number remarked that they would do to slice up like apples. The "Warren" was considered the handsomest berry on exhibition, as the judges decided in awarding it the premium. It was described by an enthusi-

astic fruit grower as "large, dark glossy red, perfect form, firm, early, exquisite flavor, productive, and is the 'boss' berry for family use or the market. A man need not go any further if he wants only one variety." One gallon in the display sold for $1.60; one gallon of Sharpless for $1.45; other varieties ranging from 30c. to 75c. The stand of "Warrens" was shipped to Cincinnati, and the Sharpless were purchased for home use and for preserving in alcohol as specimens to sell by—considered most too soft and ripe to ship.

Raising Strawberries for the North.—*The Comet*, of Jackson, Miss., of May 21st, says: "Strawberries are exceedingly perishable, and require more careful handling than any other fruit. If the weather is hot they won't bear long transportation. Almost any one can handle a peach crop, but it is more difficult to manage a strawberry crop. The crop paid little enough last year, but this year has paid a great deal less—hardly clearing expenses.

Grape Growing in Canada.—No one has thought to try grape growing for profit near Montreal, but Mr. R. J. Donnelly finds a variety called Beaconsfield perfectly hardy, and has great faith that grape growing as a business could be made a success in that place.

Dumpling Apples.—Under this name we find the following remarks in the proceedings of the Montgomery Co, Ohio, Horticultural Society: "French Pippin, of dealers in Cincinnati. An old market variety brought West by Silas Wharton. Specimen grown in Lehigh county, Pennsylvania. Esteemed as a valuable market fruit, especially for cooking. Tree large, long-limbed, spreading and drooping, bearing at the ends of twigs. Holds well."

Peach Sea-Eagle.—A very pretty white peach under this name is the subject of a colored plate in the May number of *The Florist and Pomologist*. It was raised by Rivers from the Early Silver. It belongs to the large flowered section. It ripens with Barrington and Late Admirable. So many foreign varieties do well in our climate that it seems worth while to enter this on our record of novelties.

Keene's Seedling Strawberry.—This oldest of old sorts is still one of the populars with English growers.

Salt for Asparagus.—The English journals are discussing the use of salt on asparagus, most of the discussors condemning its use. There would be no dispute if they understood why salt is sometimes beneficial, as we think most American cultivators do. Its value lies chiefly in its power of attracting moisture. Here we only use it in light dry soils, where it is decidedly of great benefit. In the moist climate and cool land of England, it is surprising that with this knowledge they should use it at all. It would be more surprising if they found much good in it.

Canadian Peas.—Step by step different sections of the continent are discovering what each is best fitted for. Canada, or at least Ontario, is becoming the great pea garden of the new world. All the best pea seed comes from there.

SCRAPS AND QUERIES.

The Season in Texas.—Under date of May 6th, Mr. Onderdonk, of Mission Valley, writes: "Our prospect for fruit was splendid, but on the night of April 13th, when peaches were nearly one-fourth grown, when our earliest plums were about to ripen, when dewberries had begun to grace our tables, when pears and apples were as large as my thumb, when corn was from that which was just planted to that which was twelve inches high, when for a week we had been eating green peas and new potatoes from the garden, when our grounds were bright with many thousands of roses, when the gay countenances of all kinds of vegetation were full of the mirth of a glad-hearted spring—just then a cold wave from the north swept over the land and a withering frost sadly changed our prospect. Most of our fruit was killed. Some spots suffered less, but now the fruit crop will be extremely light all over Texas, and private letters show a similar state of things in Northern Mexico. The past winter has been the severest I have ever seen in Texas. Our orange trees are all killed to the ground. I am glad to say that the farming interest is not materially affected, as new crops were at once planted wherever necessary."

Greenhouse Bananas.—We have from Mr. James Greenhalgh, gardener to G. G. Green, of Woodbury, N. J., several banana fruit, ripened in their greenhouse. The quality and size were at least equal to imported fruit. The bunches must have been very fine, averaging about 150 pounds and about 300 to the bunch. They have reason to be proud of their success.

FORESTRY.

COMMUNICATIONS.

FORESTRY NOTES.

BY PROF. W. J. BEAL.

At the close of the last College year, September 1st, I was unable to report the result of some experiments which were then incomplete. I now proceed, somewhat at random, to speak of experiments and work of the department for the past year.

Notes of some Timber Trees in the Arboretum. At the Agricultural College is a small arboretum of over two acres, which contains not far from two hundred and seventy-five species of trees and shrubs, all of which are labeled and the plat recorded in a book for the purpose. At this time I merely wish to speak of some of the most prominent trees which we have planted for timber. The oldest of these were started or transplanted to this place in the fall of 1875. The soil is sandy loam and not what one would call strong. It is naturally well drained. An old road once cut the lot in two pieces. At this place the land has been graded down. There is a marked inferiority in the appearance of the trees growing on this ridge where the top soil has has been taken off, showing that trees—even forest trees—are very sensitive to good or bad treatment. For example, where the top soil has been taken off in a strip about a rod wide, some butternuts which had grown three years averaged about twenty-two inches in height, and one and five-eights inches in circumference, while those on each side on good soil averaged about five and one-half feet in height and four inches in circumference.

How Planted, How the Size is Compared. The seeds are planted in rows, one way four feet apart. They are planted as soon as ripe in most cases where the trees are wanted. They are kept well cultivated till autumn. In the table below and in the text it will be seen that I have given the height, circumference six inches from the ground, and the weight of good specimens cut off at the surface of the ground. By weighing them, I get at the bulk of the wood to an approximate degree.

Burr Oaks—(*Quercus macrocarpa*). These when examined, had grown three years. The seeds grew only a few rods from where they were planted.

White Ashes—(*Fraxinus Americana*). By the side of the oaks are three rows of white ashes of the same age, of three years' growth. The seeds of the ash came up evenly and quickly, and grew well. At the end of the first two years they were straight, clean, and without a branch, as will be seen they are large for their age. By the side of these are two rows, which, at the end of one year were transplanted. The size of these is shown in the table. Those transplanted seem to be about one year behind those not moved.

Basswood or Linden—(*Tilia Americana*). These will be seen to be fully as large as the ashes. They girt from 3¾ to 4¾ inches, and run up as high as 8 feet.

Sugar Maple—(*Acer saccharinum*). The next come three rows of maples of the same age. One specimen was considerably larger than any of the others. The size is given in the table. The maples are rather uneven in size, and many are quite small.

Butternuts—(*Juglans cinerea*). These come next to the maples. Some of the largest will be seen to have grown very fast for the first three years. The limbs start out about seventeen inches from the ground

Chestnuts—(*Castanea vesca*). These are rather uneven, most of them came from nuts planted where they were wanted. Some seedlings grew a foot or more in height and blasted and died in August or September. Most of them lived, however. Some were transplanted when one year old.

Black Walnut—(*Juglans nigra*). These were measured when two years old, and have done well. The red squirrels took some of the nuts out of the rows where planted.

Ohio Shag-bark Hickory—(*Carya sulcata*). These are all small and spindling, and the best of them only about eight inches high.

Box-elder, Ash-leaved Maple—(*Negundo aceroides*). All of the trees native to the neighborhood grow along the river bottoms. They are small,

short and crooked, the largest not exceeding one foot in diameter. We have some seedlings which were once transplanted when three years old.

Ailanthus. This is tender, diseased, and will very likely soon die down to the ground.

Catalpa. The seeds of these came from the Department of Agriculture at Washington. Since writing my report the trees have twice borne fruit and prove to be the hardy species or variety. Since they came up and have made their present growth they have passed through two of our hardest winters, when the mercury went 32° and 33° below zero. They were once killed back a little, but at present they seem healthy. The table shows that they have made a rapid growth, although transplanted when they were three years old. I am much pleased with these trees, which have exceeded my expectation. Since making my report I have started more of them.

species on trial, my interest in the subject is correspondingly on the increase. It is already one of the most interesting fields of the College farm. To enable the readers to compare the figures, I give the following summary in a

Table Showing Rapidity of Growth. See table below.

Durability of Posts set "Top end Down." It is believed by many persons that posts set in the ground in a position the reverse from which they stood while growing in the tree, will last much longer than when set in the reverse position.

I have undertaken the following experiment to determine this matter:

I have selected a lot of sticks four feet long and cut the previous winter. Each one of these was cut in two, and all made an even length, about twenty inches. Each piece was split in two, making in all four pieces of one. Half of these pots were set in sandy land and the other

Name.	Age.	Height. Inches.	Girth, inches	Weight, ounces.	Remarks.
Burr Oak.....	3	36	1¾	8½	Not transplanted.
White Ash.....	3	90@96	3 @4½	16@22	Not transplanted.
White Ash.....	3	72	2¾	8	Removed after one year.
Basswood.....	3	96	3¾@4⅝	.....	Not removed.
Sugar Maple....	3	72	2⅝	.....	Largest specimen.
Sugar Maple....	3	36	1½	8	A large average.
Sugar Maple....	3	18	1⅛	.....	Many of this size.
Butternut.....	3	78	5	.....	Largest tree.
Butternut.....	3	66	4	44	A large average.
Butternut.....	3	.....	.....	2	In old road.
Chestnut.....	3	43	2⅛@2⅝	.....	Not transplanted.
Black Walnut..	2	28@43	2⅛@3⅛	11	Not transplanted.
Black Walnut..	2	.....	.....	2	Transplanted.
Hickory.....	2	8	.....	1-5	A large sample.
Box Elder.....	5	102	8	.....	Moved when three years old.
White Ash.....	5	108	7	.....	Moved when three years old.
Ailanthus.....	4	144	12	.....	Moved as a sucker three years ago.
Catalpa.....	6	12-15ft	8½@12	.....	Moved after three years old.
Butternut.....	6	12ft	9	.....	Moved after three years old
Silver Maple...	4	18ft	11@11½	.....	Moved when one year old.

Red Elm—(*Ulmus fulva*). I set a few small trees which have grown three years since that time. We generally think this tree grows slowly, but these have done well. One of them the past year made a growth with one of its best branches of eight and a half feet.

Silver Maples—(*Acer dasycarpum*). These beat all of the above in their rate of growth.

I am growing young trees of the Beech, European Larch, White Pine, White Oak, Rock Elm, American Elm, and many other kinds of prominent trees. These are all yet quite young.

We live in a new country still abounding in forests where there is scarcely a passing thought given to the future supply. With the increasing size and the increasing extent and number of

half in clay land. In each case one piece is set in a position the reverse of the other.

One lot of posts is placed about 50 feet northwest of the large stone placed on the grounds by the class of 1873, the other lot is set in the northeast part of the plum orchard and west of President's barn. In each case the row is double and runs from east to west. The posts in the north row all set with the end up as they grew in the tree, those at the south and near them are in a reversed position.

Beginning at the east the species set are as follows, in the order below named:

1, beech; 2, red maple; 8, sugar maple: 4, basswood; 5, American elm; 6, bitternut; 7, ironwood; 8, white ash; 9, black ash; 10, red

elm; 11, white oak; 12, blue ash; 13, black cherry.

[We take the above from the Annual Report of Prof. Beal.—Ed. G. M.]

EDITORIAL NOTES.

THE PRODUCTS OF CHESTNUT TREES.—The Lynchburg *Advance* says that some counties in that State sell nuts from the woods to the amount of $10,000 a year.

NORTH AMERICAN GINSENG.—Judging from an article that recently appeared in the *Commercial Bulletin*, of Boston, the North American ginseng root (Panax quinquefolium) is an important product, being still imported in large quantities from thence to China for medicinal purposes. We had an idea that the true Chinese ginseng (Panax Schinseng) even was at the present day comparatively little valued, as it is known by Europeans and by many Chinese to have no real properties, and that the North American species was still less valued, but the writer in the paper to which we refer says: "The traffic in the American root is now principally in the hands of a few Chinese merchants in San Francisco, and the average annual exports amount to about $700,000. The trade was once in the hands of Boston and Salem merchants, and subsequently in those of New York parties. Very little ginseng is received at the present time either in Boston or New York, but it would speedily find a market if any were produced. It is now dug principally in West Virginia, Pennsylvania, Wisconsin, Michigan and Minnesota. Several attempts have been made to cultivate the plant in North Carolina, but without success. It grows best in a wild state in the forest, and the Indians say that from ten to thirty years are required for a root to mature."

We find the above in the London *Gardener's Chronicle*. The plant must be getting scarce. In a six weeks journeying through the mountains of North Carolina, Tennessee and West Virginia last year, the writer did not collect a solitary wild specimen. That "attempts to cultivate it in North Carolina, but without success," may be true enough, as "attempts" go down there. The writer was seriously informed that lettuce could not be grown. At the foot of Iron Mountain, our party were entertained over night at the house of a Captain Forbush, on Rock Creek. In a well-cultivated garden of vegetables, chiefly under the direction of the good lady of the house, were many luxuriant vegetables which were popularly supposed not to be cultivable around there. In this garden was one cultivated plant of ginseng in admirable condition. There is no more reason why a thousand plants would not grow as well as one, and we made the memorandum to say so the first time we heard again the old story that "ginseng cannot be cultivated."

CEDAR WOOD FOR LEAD PENCILS.—In regard to Juniperus Virginiana, at a recent meeting of the Delaware County Institute, Col. Willcox described the cedar industry of Florida. The demand for this wood by the pencil makers has been so great that the growth on private grounds has been exhausted. As the woodmen were forbidden to cut on the public grounds it necessitated a purchase of the lands, which was made at a very low price, but when the wood was cut the taxes remaining unpaid the land had to be sold again. New arrangements exist now. Any one may cut trees on the public lands by paying stumpage, a charge made according to the number of trees cut. The value of the wood now is about 50 cents a cubic foot. The trees are floated on rafts to the mills, where they are smoothly prepared in slices just as thick as a lead pencil.

NATURAL HISTORY AND SCIENCE.

THE HOME OF THE TORREYA TAXIFOLIA.

BY MARGID DIGRAM.

(Continued from page 185.)

Between Micanopy (Mick-an-o-py) and Gainesville, a broad, unbroken prairie-like tract, probably the bed of a former lake, and composed of soil of inky blackness and exceeding richness, is crossed by the stage road uniting the two places. During the olden time—the days of slavery—these black, and in some cases semi-marsh lands were made to yield large crops of

sugar cane, an industry which at the present time, is quite in abeyance, but that will probably be revived when labor and capital become more abundant in the State. A similar soil, though in a very different position was found on the Chattahooche river about the third of a mile above the present western terminus of the Florida Central railroad. Here the jet black earth covered a low hill, or bluff of limestone, the white rock frequently appearing through it. A few acres of this black land has been cleared of the heavy timber, and had been cultivated in corn, but the forest still claimed most of it. Along the fences, bordering the upper line of this cleared field, and for a short distance up and down the river is the home, and only native habitat known of the Torreya Taxifolia, a beautiful evergreen tree. This evergreen has been successfully grown elsewhere, and fortunately so, for it is not unlikely that the rich ground upon which it lives and thrives, probably partially formed of the decomposed limestone beneath, will before many years be made to yield a profit to its owner in the direction of crops of corn, cotton, or upland rice, and then the rare tree will stand a fair chance of disappearing from its native haunts, its own little Eden, its heaven-given home.

It is very much to be desired—and this article was largely written for the purpose of saying so—that this unique Florida product may meet with better treatment and a better fate.

It appears to grow so easily, numbers of the young plants being noticed around the old ones, that it would seem as if it might be saved if allowed only the fence borders for its occupancy, where, given proper protection, it would grow up thickly and soon form an ornamental hedge. Or better still it would not be surmising greatly amiss to suppose that the owner or owners of the property might make the ground pay them a large profit by devoting it in part at least to the propagation of this handsome tree than they could realize from it if it were wholly planted in some one or more of the Southern staples. The market for the plant, as material for garden hedges and for lawn decoration, would be the entire line of the gulf coast from Cedar Keys to Matamoras which as it becomes more and more closely populated will be likely to increasingly indulge in ornamental flower and tree culture.

As one interested in botany, I throw out these suggestions with the hope that should they happen to reach the notice of the one or more proprietors of the Torreya covered tract they may give them serious consideration.

The ordinary Southern tourist, or rather the Florida visitor, is one of the rapid kind, and does his travelling by the shortest and quickest routes. For the few who have a little more leisure at their disposal, the writer would advise the trial of a trip over the central road to Chattahoochee Landing, where the Torreya trees may be seen, and northward up the rock-walled river, to Euphala, or the manufacturing city of Columbus at either of which connection may be made with the through lines of rail. Or, after a call at Lake City and Tallahassee, a stoppage might be made by the traveller at the pretty and quiet town of Quincy where he would be certain to receive the best of treatment and there await the arrival of a steamer bound southward on the Chattahooche. This down river ride I suggest, that a visit may be made to the town of Appalachicola, which, though I have not seen it, I conceive must have particular attractions of some kind, as it was, and may be yet, the home of the botanist Chapman, whose manual of Southern plants is known the whole country over.

BOTANICAL RAMBLES IN CALIFORNIA.

BY W. F. PARISH, SAN BERNARDINO, CAL.

I have just returned from a trip with Dr. Parry to Aqua Caliente and vicinity. The Doctor is good company and knows everything. We made some good finds while there that I suppose he will let the world know of in course of time. He has squatted on palm logs and squinted into all sorts of crannies, and measured the Spinous Dalea, and got pricked for his pains; made all kinds of notes and rude draughts of things and got down on his hands and knees and gouged in the damp sand for depauperate or new forms; has gotten his bones well shaken over the cobbles and rocks of the washes; got out of grub; got caught out in a wind storm, and in a rain storm also. I wish you could have seen him perched up on the front seat of the buckboard, wrapped head and heels in a blanket, with one eye only visible—his botanical eye which is never shut. He would have passed muster very well as a small squaw; how the wind did blow to be sure. I believe we all were somewhat Indian looking, for each one, driver and all, was more or less swathed in blankets.

It was long after night-fall when we reached Whitewater Station, where supper, hot tea and a good fire soon made us happy.

If I keep on in this way you won't get much information about the little article I send you with this. Don't carve him up any more than you can help, and send me his dismembered remains home for interment (in the county paper), *i. e.* any part you don't use, if you would return it I should feel obliged, as the first drafts are very imperfect, and mutilated so that I could use but little of it, and I would like to use the parts that I suspect you will reject. I don't envy you the job of correcting it. I also send you a note for "the modern diet of worms." By the way there are no Abronias and no worms this year—season too dry. I hope to be able to write you again soon.

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I knew I should be at it again, if it hadn't rained I should have let you off, but now I shall bore you some more—ain't you sorry? First, there is our find of a yellow Penstemon centranthifolius, a clear bright lemon yellow, pure and distinct, botanically no great thing, merely an odd color; but as a florist's plant a good thing, I hope. I brought it in last season and now it is in full bloom, and will keep on all summer; but I shall allow it to go to seed as freely as it will for next year's sowing. Either next year or the year after (when I see seedlings) I will place it on the market; it seems as healthy and strong as the typical kind. There is also a pure white Mirabilis Californica, which we have tried to get named, but not with success. Mr. Parry says if no one else will name it he will. I often think if botanists could see the plants growing they would discern the differences in them more readily. Another plant with which the Doctor is not suited, is our new Phacelia cordifolius, which isn't very heart-shaped after all, and he says is too pretty to have such a name. But the worst thing of all is when my insignificant Penstemon. that I had made up my mind was to be a Parishi proved to be P. Rothrocki who had gobbled it up somewhere or another and got his name tacked on it for a handle. Well the Trichostema Parishi is a beauty, buds and all a beautiful purple. Why in the name of all the saints, new and old, don't you send an artist out here and do some of our plants; or still better come yourself. Why I'll drag you over the hills and plains and show you more gorgeous plants in one season than a decade of search will reveal in the East. Here is your glow of color and rare shapes in their delicate beauty that no eastern air can hope to produce. Come along, I want to see some of my pets in print. for I love them. I belive you would hit it if you did. I will do what I can to assist you, stay or come, as you will. How are the plants we sent you doing? One great mistake all cultivators make is shutting off the sunlight from our California plants. I judge from drawings and infer from knowledge of ways of culture in vogue East. Our railroad is through now and we are in direct communication with the Atlantic States, which will help us in the shipping of plants. You will probably be surprised to hear that Hyacinths now going out of bloom are a grand success out of doors here, and Doctor Stillman said that our Ranunculus were as fine as any he ever saw in Holland. The pansies bloom all winter; Triteleia uniflora has been in flower a month or more. Fritillaria persica begins to bloom the last of February. Narcissus are all gone. Caladium esculentum planted under six inches of water, has a leaf eight or ten inches long, that on land has no sign of leaf. Sagittaria chinensis is rarely two feet high. Vinca in bloom all winter. Lillies, Humboldt's are from three to six inches, with big red leaves an inch and a half or more across. Longiflorum which does remarkably well in the sun, and L. superbum sends up a head smaller than a lead pencil, half the size. Candidum is an evergreen almost, the stalk is scarcely down before the new one is up; the speciosums are all booming along and do nicely; Parry's lily is coming along; I think I planted the eastern species too deep as superbum is the only one up. How deep ought I to plant? Thompsonianum does so well this winter, I hope to flower it next year; had almost given it up. Thunbergianum promises well. Several others are up I do not recollect. I long to try some of the more expensive sorts that I have hopes of doing well here, especially cordifolium, giganteum, and the more desirable species which, from descriptions, would suit our climate exactly, but my purse won't stand the pressure to purchase, so I semi-content myself with anticipation. Aquilegia truncatas, scarlet flower, is in full perfection. Delphinium cardinale is opening; also Penstemon centranthifolius and P. Clevelandi. Verbenas are now showing plenty of color, but not one mass of it as later. "Dinner is

ready," and I have thought I would write a sketchy, jerkey little article now and then. I would like to find some amateurs with whom I could exchange plants. There should be some such. Can you tell me? I can exchange with the trade, but I think they ought to buy; so I exchange as little as may be, though I long for more plants to nurse. And are not you glad that this is the end, and just suppose all of your correspondents were as voluminous. I think I have twirled my auger sufficiently for this time. So adieu for the present; you may have mournful anticipations after the future, for most certainly I shall write you again. Moreover I have that in my portfolio that I am fain should see the light in the MONTHLY. Dei gratia, and the favor of the editor.

EDITORIAL NOTES.

ITALIAN BOTANISTS.—*Revue de l'Horticulture Belge* has an interesting paper on Italian Botanists, many of whose names are familiar to all. At Naples were the gardens of Sallust, who loved horticulture as well as botany. Dioclesian, after he abandoned the throne, became eminent as a botanical student. Columella and Pliny, well-known plant lovers, followed him. There seems a long gap between Pliny to the revival of learning. In 1842, Zanto published at Milan a treatise on botany. In 1486, the *Hortus Sanitatis* appeared. In the sixteenth century came Gesuer, Mathioli, and Andrew Laguna, and Frederick Cesi, born in Rome in 1485. Cesi was banished by the pontificate, and his works are lost. His studies comprised every department of botany, but his specialty was the anatomy of plants. He had a large museum and a botanic garden. His observations are said to have been a long way in advance of his time, and to have included the discovery of the sexes of plants, and all the phenomena of fecundation through means of the pollen; but this does not seem to be a certainty, his actual work having been swept away. Colonna followed. He first gave the name petals to the floral leaves. Other Italian botanists of note about this period were Maranta, Luca Ghini, Anguillara, G. B. Porta, and Cæsar Alpino. Cæsalpin was the father of botanical classification, and to this day some of his points are regarded as sound. About the same time numbers of great names appeared which have mostly been honored by attachment to genera of plants. Pona, Zanoni, Becone, Pontedera, Micheli, Zanichelli, Martigli, Triumfetti, Fozzi, and Allioni. In 1450, Pope Nicholas V. ordered the founding of a botanic garden at Rome, but he died before his project was accomplished. The first botanic garden that history speaks of with certainty was founded by Laurent de Medicis in the Villa Careggi. That at the University of Padua followed in 1545. The author of the paper is proud of Italy's great botanical names, and remarks that the only fault that can be found with Italy's botanists is that they have not been great travellers, but have contented themselves with studying the indigenous flora,—but the reproach does not reach the Italian botanists of to-day, who are receiving a world-wide reputation.

BEES IN NEW ZEALAND.—It is the misfortune of progress that many assumed facts are admitted on insufficient evidence, and speculations founded on them often come to naught. A good illustration of this is in the reputed relations between bees and clover. European works have asserted the impossibility of clover ever producing seed unless fertilized by humble bees. The Editor of this magazine experimented, and found that in his part of America the clover did seed just as well when humble bees were excluded as when they had all their supposed assistance. Moreover, that when the humble bee in America wanted honey from clover it bored in from the outside, and made no use of the cross-fertilization arrangements at all! Against this was always brought the argument, "You must be wrong. Clover once never produced seed in New Zealand, but since the introduction of the humble bee it seeds freely." The Editor has more than once replied in this magazine, that there is no evidence that the humble bees are there at all,—but still on the rounds in the most intelligent papers, marches on the story of the utility of the introduced bees in producing clover seed in New Zealand.

Now we find the following in the Timaru (New Zealand) *Herald* of February 7th, 1881:

"HUMBLE BEES.—The two queens, the survivors of a shipment of eighteen consigned to Mrs. Belfield, were turned out on Mr. Bristol's farm on Saturday morning. They were strong and healthy, and flew away briskly against the wind Being liberated amidst clover fields there is every chance of their doing well. Some years ago the present Premier of New Zealand attempted the introduction of this useful insect, but unsuccessfully, the last of the creatures dying within ten days' sail of our coast. Not being aware of any

successful attempt at their acclimatization being made heretofore, we believe that the pair of queens set free on Saturday have the honor to be the first of their kind in this country."

For all this, no doubt the story of the fertilized clover fields of New Zealand, all through the humble bees introduced years and years ago, will be long yet used as a sound argument.

PIG-NUTS.—The daily papers are full of accounts of the wonderful properties of the "pig-nut" in fattening horses in Germany. And the horses like them. They chew them with a relish whenever they get hold of one. Our readers had better not try American horses with "pig-nuts," unless some equine dentist discovers how to iron their teeth, for our hickory nuts, to which the pig-nut belongs, would be hard chewing. But herein is the beauty of a common name, and we commend it to our good friend, *The Garden*. To the thousands of people who have read about these "pig-nuts" the time spent in reading is all lost, nobody knowing what the "pig-nut" can be. It cannot be Carya porcina. For the present, thanks to a "common" name, the "Pig-nut" will not be "common to American horses." Even when we do know what this "pig-nut" is, we shall have to tell the reader that it is not "that other pig-nut, Carya porcina, nor that other pig-nut, Cyperus hydra."

BOTANY AND GARDENING.—In these days the study of botany enters so largely into polite education, that it has become an essential part of a gardening education, and it is found by experience that those nurserymen or seedsmen who watch the current of affairs, and make their catalogues and advertisements botanically interesting as well as horticulturally instructive, add immensely to their business success. As an illustration of the great change which the best catalogues exhibit we give the following extract from the catalogue of Haage & Schmidt, of Erfurt, Germany:

"LIETZIA BRASILIENSIS, Rgl. et Sch.—Gartenflora 1880 T. 1005. New tuberous-rooted Gesneriacea offered for the first time, being in habit and foliage similar the well known sorts of Gesneria, as for instance G. caracasana, but the form of the flowers is so strikingly different from all other species known that it could not be classed amongst the existing genus, and a new one had to be created. The flowers are finely dotted with purplish brown spots on light green ground, varying in several shades, sometimes almost blackish brown, with only a narrow light green margin; the shape of the flowers is well represented in the annexed figure. If sown in January or February, like the other Gesnerias, the plants will be in full bloom during the summer. Very interesting novelty, of a peculiar beauty, highly to be recommended to all lovers of Gesneriaceæ."

Here we see in the illustration not merely the general habit and appearance of the plant as in the olden time, but the peculiar structure of the flower, so that one botanically inclined can see its relationships to other genera of Gesneriaceæ, and judge of the reason why, as the text says, "a new genus had to be created." Even the seed vessel, of no use horticulturally, is engraved especially for the benefit of botanical readers. A few years ago no one would have cared whether

LIETZIA BRASILIENSIS.

a Gloxinia or an Achimenes was a Gesneraceous or a Scrophulariaceous plant. Indeed, it might have been deemed pedantic to use a word so apparently learned as "Gesneraceous," and the idea would have been gingerly expressed thus. "I have a taste for those plants which are allied to the family to which the Gesneria belongs." The easy manner in which Haage & Schmidt now speak of "lovers of Gesneriaceæ," shows that they correctly measure the breadth of intelligence which now pervades the whole community. It is a good lesson for those who would be up with the times.

EDITORIAL KNOWLEDGE OF COMMON THINGS.—Last month we thought proper to refer to the unpardonable want of knowledge in the editorials of daily newspapers, wherein, of all the departments one might reasonably look for correct information. That was about indigenous and

exotic flowers. Here is a piece from an editorial of another daily:

"One of the peach growers of Delaware, who backed up his opinion that there would be no crop this year by selling the fruit of his orchard in advance for five dollars, is now grieved to observe that all the buds with the 'fatal black spot' in them have blossomed. While it is unwise to count one's chickens before they are hatched, it is equally unwise to treat them as dead before they have had a chance to live."

If the Editorial writer had taken the trouble to get down his Encyclopædia of Agriculture, he would have found that the "fatal black spot" seldom goes farther than the gynœcium, leaving the calyx and corolla unharmed. Unfortunately a Peach flower without a gynœcium is of about as much use to a peach raiser as is an addled egg to a poultry fancier. That "Peach Grower of Delaware" is simply crying for an addled egg. Perhaps a few buds may have preserved their reproductive organs, when the majority had "the black spot," and there may be a few peaches, but the "germ" or gynœcium once blackened can never give a peach.

HUMBLE BEES AND FLOWERS.—It is no new observation that bees in America slit the tubes to get honey. William Bartram, in 1791, noted that "Apis bombylicus" was visiting the flowers and piercing their nectariferous tubes when he was in Florida. The general impression seems to be that it is wholly a modern observation. Even Bartram, nearly a hundred years ago, does not seem to note it as anything new, from the casual manner in which he notes it.

DISEASE IN THE HOUSE FLY.—In the fall of the year it is not uncommon to see a fly, dead, and attached to a pane of window glass by a small, webby fungus, which has grown from the fly. This form of fungus is similar to that which is found in the mucous membrane of those who are attacked by diphtheria. At a recent meeting of the Delaware Co. Institute of Science, Dr. Eckfeldt read an essay on the "Diseases of the Common House Fly." It is a common thing to see these insects on windows and elsewhere sicken and die. The disease has been found to depend upon the ravages of one of the lowest forms of fungus growths, resembling those seen on bread and sour paste. This fungus is known as Botrytis dassiana.

At the same meeting, Col. Joseph Willcox presented to the museum eighty specimens of plants from Thomas Meehan, of Germantown. These were collected by Mr. Meehan, Col. W., and others on their visit to the mountain region of North Carolina in the summer of 1880. Many of them are rare, and were wanting in our herbarium. Some of them are not found growing south of the White Mountains of New Hampshire except in these mountains.

INSECT CATCHING FLOWERS.—We have noted in past issues the singular power possessed by the flowers of Asclepias, Physianthus albens (the proper name for which, by the way, is Aranja albens), and other plants. Mr. Peter Henderson contributes a further note on this to the *Scientific American*:

"On the 'cruel plant' (Physianthus albens), hundreds of moths, butterflies, and other insects may be seen any day in August, when the plant is in bloom—dead and dying, firmly held by their antennæ. Professor George Thurber thus describes the trap contrivance by which the insect is caught: 'The anthers are so placed that spreading cells form a series of notches in their ring around the pistil. The insect in putting its proboscis down for the honey must pass it into one of these notches, and in attempting to withdraw it the end is sure to get caught in a notch, boot-jack fashion, as it were, and the more the insect pulls the more its trunk is caught.' Thus caught, the insect starves to death, hence the well deserved name of 'cruel plant.' Now, here is a trap nearly as wonderful as that of the Carolina fly-trap, and far more so than that of the viscid exudations of the Silene; yet even Mr. Darwin would hardly say that the 'cruel plant' feeds on these insects, any more than that the gnats caught by millions by the resinous exudations of the hemlock tend to augment their growth, or that the thistle or burdock of the wayside owe any part of their health and vigor to the scores of butterflies, moths, or bumble bees that are in their headlong flight impaled on their spines."

THE SEA GULL AND THE PELICAN.—The gull it appears is the guller and not the gulled. Mr. Joseph Willcox of the Philadelphia Academy of Natural Sciences has been studying the grey pelican of Florida. In the morning it gorges itself with fish, and puts what it cannot eat then into its pouch. It is so heavy that it stands all day with its head down waiting for the food to digest. As it digests he opens his pouch and takes out another fish to eat. The gull has learned this, and hovers around watching its chances; when the pelican erects itself the gull knows what it is for, and hovers around, sometimes even resting on the pelican's back, and, as the pouch opens makes a sudden pounce with its head, and adroitly seizes and carries off a fish from the pelican's pouch.

BLUE WOOD ANEMONES.—The enclosed specimens were found by Mr. Edward Little in a copse about a mile from Tunbridge in Kent, growing in a patch by themselves amongst a a large number of those of the usual color. He failed to find any difference in soil, aspect, or proximity of any peculiar plant, the manure from the decayed leaves of which might have occasioned this marked change of color. *W. T. T.*

[We never saw blue flowers of Anemone nemorosa before. They are nearly as blue as those of A. apenina. Eds.]

The above is from the *Gardener's Chronicle*. As this is the common "wind-flower" of American woods, a blue variety might be found here also, by looking sharply. Pinkish ones are not uncommon.

ARIZONA SCENERY.—Mr. Lemmon in a letter to the *Rural Press* gives the following sketch: "At the historic old adobe city of Yuma, on the other bank of the Colorado, we paused for only an hour. Not a green plant to be seen, except the ever-present creosote bush (Larræ Mexicana), gave opportunity to study Indian character—the subjects of all ages and both sexes being abundant. These Yumas are now a peaceful, non-hunting tribe, still governed by the noted old chief, Pasquale—straight as an arrow, over six feet high, and said to be about 100 years old. His mother, a very mummy in appearance, lives with the chief, near the old fort. Strong belief is entertained that she must be about 120 years old.

THE ENGLISH SPARROW.—*The Gardeners' Chronicle* says: "It is not in England alone that Mr. Fish's complaints of the sparrows (see *Gardeners' Chronicle*, July 10 p. 54) find an echo. Everywhere in Europe, and even in Algiers, these greedy and too prolific birds are becoming more and more a scourge of the farmers and gardeners. Essentially seed eaters, and not despising sugary fruits, the sparrows swoop down in great numbers on the ripening harvests and on the seed-bearing plants of our gardens, where they would not leave a seed unharmed if it were not for continual vigilance. Cunning and obstinate, as well as audacious, they only laugh at traps and scarecrows and the report of a gun only disperses them for a moment, to return in still greater numbers. Of all winged creatures it is the sparrow who best represents the rabble of our towns and villages. Nature, however, has her reason for having created sparrows. The sparrow is one wheel in the great mechanism of the globe, and it has only become obnoxious by excessive increase. This brings us to the point of finding a means of reducing the number of sparrows to its proper proportion. Does this means exist? We do not hesitate to reply in the affirmative; not only does the means exist, but it is most simple, and this perhaps is the reason that nobody has availed himself of it."

SCRAPS AND QUERIES.

EASY ENGLISH NAMES.—Mary J—— writes: "I see the force of much that you say about English names, yet surely if a reform could be brought about, would not botany be easier than now with its hard Latin and Greek names?"

[Our correspondent mistakes. We are sure from her notes she is a lady of good capacity to learn, and yet we feel sure if we were to give her a hundred plants she had never seen before with a hundred "easy" English names, and a hundred "hard" Latin ones, she would learn to distinguish the plants much sooner by the "hard" than the "easy" names. Moreover those who are urging the general adoption of "common" names even to the coining of them long before they are common, do not propose to relieve you of the trouble of learning the hard name. You must learn them both, if you use the common name, say "Pretty Phoebe Phinkle," you must put the Latin name in brackets, thus [Jonesia Smithiæ] for if you call the plant "Pretty Phoebe Phinkle," in Brown County, they will call it "The Sour Old Maid" in another, and you will have to add [Jonesia Smithiæ] so that all the world will know what you mean.—Ed. G. M.]

VERBENA RUST.—L. I., Brooklyn, N. Y. The Verbena rust is not a new trouble, though some years it is much more prevalent than others. This year and last it has almost disappeared. It is not an insect as you suppose which causes the rust, but a small fungoid parasite, Erysiphe verbenæ. It was first discerned and its true character made known, with the name as above by Schweinitz an eminent botanist of the early part of the present century. Curious mites have been found in connection with the rust, and some have supposed them to be the cause of the trouble.

INDIAN COOKERS.—W F. P., says: "Since writing you the modern 'diet of worms,' I have learned the art and mystery of cooking them, having just returned from a visit to the desert where I interviewed a respectable old squaw, the wife of the chief, and the best cook in the tribe. She says: First get your worm; make a fire on the hard ground; when the soil gets hot scrape away the embers, spread your prepared worms on the hot surface; if the fire has been properly made and kept up, the worms will soon shrivel up into a crisp and luscious morsel that will keep some time. But they are best warm as a relish after lizard roast, or dead horse boiled.

LITERATURE, TRAVELS AND PERSONAL NOTES.

COMMUNICATIONS.

WHERE SHALL I SEEK A HOME?

BY J. A. BENT, WHEATON, ILLS.

Thousands who intend to push out for a new country and grow up with it are asking themselves, "Where shall I go? By reference to the map of our country it will be seen that a belt some three hundred miles wide, including the latitude of Pennsylvania on the south, and Massachusetts on the north, and reaching from the Atlantic to the Pacific, includes the major part of our wealth—manufactures, railroads, mines, colleges and schools of our nation. It is a zone well adapted to a large range of most valuable farm productions; it includes the best dairy regions of our land. It is the region of robust physical development. Somewhere in this belt is a good place to seek a home; corn, wheat, oats, grass, and the more important fruits all do well here. But in the East, and in the Mississippi Valley, the price of land is so high that a man of moderate means must go further on. Wild land in Western Iowa ranges from $6 to $12 per acre. But just across the Missouri river, in the latitude of Central Iowa, in Eastern Nebraska, land can now be had from $2.50 to $5 per acre, on favorable terms as to time. These lands are near a net-work of recently constructed railroads. The soil is precisely like that of the famous Missouri River Slope land in Western Iowa. Equally rich, and, if anything, more favorably formed for easy cultivation, being more gently undulating. The great rival trunk lines of railroad to the East meet on the border of this land at Omaha and Sioux City. There is no land in our country so well underdrained as this region, as its subsoil is the Loesse Deposit from 20 to 200 feet deep, which at once absorbs, retains and holds for future use the surplus rain of spring and early summer. As there are no sloughs, and the numerous creeks and rivers are rapid and fed from springs, there is next to no malarial influence to occasion fever and ague. There is scarcely any mud, and usually but very little snow in the winter. It is a latitude so cool as to render it necessary to provide hay and shelter for stock, and in consequence the stock is of high quality and adapted to enrich its owner. The grass grows finely on all the uplands, and makes the finest prairie hay. In the valleys of the Missouri, the Logan and the Elkhorn grass yields from two to four tons to the acre. Corn yields as well as in the best parts of Illinois and Iowa. The present low price of land cannot long continue. Iowa farmers, and especially the stockmen, must go where land is low. The facilities for shipping hay will cause that industry to flourish, and the broad and fertile valleys will soon be wanted for grass and corn.

Think it over. As good farm land as is to be found in our country, well watered, near important lines of railway, in the valley region of the great river, in the heart of our country, and to be had at from $2.50 to $5 per acre.

To see this region, strike for Omaha or Sioux City, Iowa, and in a few hours you can examine and see for yourselves.

NOTES AND QUERIES—No. 26.

BY JACQUES.

Want of forethought is emphatically exhibited by the new paper makers. When they found that paper could be made from the tulip-poplar tree they at once began to buy it up and cut it down wholesale. No one of them it would appear anticipated a future supply by planting more of this quick growing wood, and now they are about out of the material and are forced to import pulp from Norway. This is an example like the want of foresight in the American Government, which lets its best forests be stolen and

plants no more; or in its neglect of planting the cork tree. Time enough has elapsed since notice was given in this journal that the latter was well adapted to much of our climate; the result is only a stray specimen here and there, and cork is still an expensive imported article.

At the Centennial the popularity of the Japs was often remarked upon. They have a great love of gardens and gardening. At a late meeting of the St. Petersburg Academy of Sciences, M. Grigoneff made a report on this topic. Gardening, he said, was carried on by all classes of society, from the great palaces to the most humble houses. Gardening, as well as the art of making bouquets, is taught in schools; nowhere else are there so many gardens. The species cultivated are mostly miniature representatives of great trees. All new species and varieties of garden flowers and trees are sold at high prices, and become known throughout the country with great rapidity. Miss Bird, in her curious book of travels, confirms this.

A learned Swiss has pointed out that a poplar or other tall tree may, if its roots strike into the damp soil, serve as a lightning conductor to protect a house; and he thinks he has verified the conjecture by examination of a number of individual cases of lightning stroke. In the case, however, where the house stands between the tree and piece of water, a pond, well, or stream, the shortest path for the lightning from the tree to the wet-conductor may be through the house!

Ivy.—There are few things that bear the heat of a room as well as ivy. In Germany there is a very pretty use made of it; thus, a box to fit the window-sill is prepared by a slight drainage, and filled with suitable earth. In this are planted many roots of ivy, and as it grows it is trained to suitable interwoven frames, and kept neatly trimmed; there results a curtain of green which completely excludes sight from the outside, and the room is but slightly darkened. Try it. Again, a similar box of ivy roots may be placed against a parlor wall, and supported by wire netting, etc. Its effects are greatly preferable to hangings or wall paper. The drainage may be effected by placing a cup or saucer under the box with a hole in it, the box being slightly elevated. There are other plants that will answer, but none so pretty and effective as the ivies. In this connection a little work published by the Longmans, of London, is worthy of notice. It is entitled "Town and Window Gardening," by Mrs. Bucton, whose object is to render home attractive. The taste of many a young person would be raised by its perusal.

The number of existing plants is placed at a minimum of 250,000 species.

A bee hive has been invented in which the bees are compelled to build their combs straight and uniform.

EDITORIAL NOTES.

GIVE ME A NOTICE.—Time and again have we to tell our readers that NO BUSINESS MATTER OF ANY KIND CAN APPEAR IN OUR READING PAGES. We print it in capitals to avoid any mistake. Here is a good friend who professes to feel aggrieved that we took no notice of his request to have his catalogue and general business noticed in our reading columns, "though I," he says, "offered to pay you handsomely for the notice. All respectable papers do, and especially the religious papers, and surely you are not so much of a Pharisee as to believe you are better than other men." To all of which we have only to say, that to give a notice free to one, while we make another pay, is an injustice to the one who honestly pays for his advertisement, and we should expect them to stop advertising when they found others had notices free. On the other hand, to take pay for a "reading notice," the public being led to believe it is the unbiased opinion of the editor, is a fraud on the public. It may be that "they all do it." Perhaps they "all copy in this from religious papers." Even it may be that we are with the miserable Pharisee. So be it. At any rate we never have, nor ever will give business notices in the reading columns of the GARDENER'S MONTHLY, either well paid for or free.

CHROMO-LITHOGRAPH ADVERTISING.—We are glad to note the increasing use of chromo-lithography in advertising. Mr. Henderson, Mr. Dreer, Mr. Heinl, Mr. Pennock, Mr. A. Scott, and more recently Mr. Stone with the Pocklington grape have set an example that we are sure must soon have many followers. A plate colored to nature will tell more at a glance than a half-hour studying of a mere verbal description. It is of course costly to take a page of advertising in the shape of a colored plate, but we are sure that Mr Stone's advertisement will pay him.

EXOTIC AND INDIGENOUS FLOWERS.—There seems to be a strange misconception about these terms. Last month we had to score a few bad marks against our young pupil of the *Press* Now it is the *Public Ledger*, which says:

"Is it because of Professor Rothrock's lectures on Botany every Saturday afternoon at the Horticultural Building in the Park, or because of some other kindling influence, that we see little flower merchants, and big ones too, on the streets with bunches of wild flowers for sale? How beautiful the daisy looks in these little bouquets; and if the daisy was only an exotic with a ponderous Greek name what prices people would pay for it."

Now it so happens that the daisy is "only an exotic," though it certainly has become wild, and can its "Greek name," Chrysanthemum leucanthemum, be any more "ponderous."

A NEW YORK ACRE.—The New York *Evening Post* says: "The flowers sent to Mlle. Bernhardt filled not only her stateroom but an acre or so of dining tables in the main saloon. The designs were nautical, theatrical, gigantic." No doubt of it. The steamer itself covers probably a hundred acres, and the dock in which she took off Sara perhaps some thousands, while New York city, in which these huge steamers with acres of dining-rooms, take refuge, must be—well, "gigantic."

AMERICAN POMOLOGICAL SOCIETY.—The London *Gardener's Chronicle*, referring to the recent volume of proceedings, says: "We have before us the report of the meeting of the American Pomological Society held at Rochester in 1879. This is a publication which may well put our horticultural and pomological societies to shame. It contains a record of useful work done with which we have nothing to compare."

MR. WALTER HILL.—Mr. Hill, the Government botanist of Brisbane, Australia, having reached his sixtieth year, retires from the charge of the Botanic Garden, under the civil service rules of that part of the world. But he does not retire from useful life. He has by this time started on a botanical exploration to Mount Lindsay, after which he will explore the line of the Johnstone. Mr. Hill made valuable botanical discoveries in these districts twenty-five years ago, but much more may probably be done in those lines yet.

MEEHAN'S FLORA OF THE UNITED STATES.*—[So many of the readers of the GARDENER'S MONTHLY have taken such a warm, personal interest in this work by its editor, that we have ventured to introduce to them the following review from the London *Morning Post*, of April 9th:—Ed. G. M.]

Apart from the gain to science involved in a thorough exposition by a qualified hand of the flora of any particular country, there is no surer, and, at the same time, simpler, agent of mental refreshment than the study of those wild growths which, even in the barrenest and most forbidden regions, appear at times to delight the eye and elevate the soul. Even an unintelligent appreciation of the beauty of flower, or fern, or grass, carries with it something of a softening influence, and in how great a measure must the educational value of the feeling be increased when the admiring eye bears company to understanding examination of plants (which at first perhaps attracted only by their beauty or quaintness) as regards their habits, properties and associations? An author who enables his fellow-countrymen to taste of these elegant pleasures is doing a truly patriotic work, of which it is difficult to overestimate the value; consequently too much praise cannot be awarded to Professor Meehan for the work of which these two splendid volumes form the first series. It is in point of fact a most successful attempt to do for the indigenous flowers and ferns of the United States what Annie Pratt, in a more restricted sphere, has done so well for Great Britain, but in a far more sumptuous manner. It may be mortifying to national vanity, but is none the less a plain truth, that we cannot compete with our Transatlantic cousins in the production of chromolithographs; those with which these volumes are adorned have been executed by the renowned firm of Messrs Prang & Co., of Boston, from the paintings from nature of Mr. Alois Lunzer, who it may be said *en passant*, must be an artist of singularly delicate and poetic feeling. As for the reproductions, they are simply the most perfect specimens of the process we have ever seen; it is difficult in some instances to believe that the eye is not resting upon a good hand-painting, especially when, for the sake of throwing the coloring into higher relief, a faintly-tinted paper has been used for the background; excellent examples of the truth of this statement will be found in the first volume in the drawings of Euphorbia corollata, Calla palustris, or Sedum Nevii, or even better still in the two loveliest plates of vol. ii., viz., Ipomœa lacunosa and Andromeda mariana. In this last named the texture or the wax-like bells is marvellous. It would be possible to dwell for hours on these illustrations, but we must refer to Professor Meehan's more immediate portion of the work. It appears from the preface that he had originally entertained the stupendous idea of a work which should treat exhaustively of the entire flora of the United States, and had even gone so far as to issue a prospectus of the undertaking, but calm reflection showed that, apart from the

*The Native Flowers and Ferns of the United States in their Botanical, Horticultural and Popular Aspects. By Thomas Meehan, Professor of Vegetable Physiology to the Pennsylvania Board of Agriculture. First series. 2 vols. Philadelphia: Robson & Co. London: Arthur Ackermann.

necessarily eclectic nature of the public to which such a work would appeal, its actual completion in systematic fashion would be a task greater than any man could reasonably hope to accomplish in a lifetime. The idea was accordingly modified, and the present most valuable contribution to botanical literature is the result, containing, as it will do when complete, a careful selection from the innumerable flowering plants and herbs peculiar to the United States, not restricted to any particular district, but ranging over the wide region between Canada and Mexico from the Atlantic to the Pacific shores. It must not be supposed that the work is addressed exclusively to those who make a scientific study of botany; although the technical matter is in each case thoroughly good and trustworthy it is enlivened by poetical quotations, by references to mythological tales bearing on the name or history of any particular plant, and even by occasional scraps of folk-lore, though here, as might have been anticipated from an American author dealing with plants most of them unknown to the elder races, the notices are more rare. For instance, in the mention of vervain, its traditional employment as a charm against witchcraft is passed in silence, and without mention of Meg Merriles' rhyme, although the old religious chant anent its healing properties is quoted. On the other hand, an ingenious derivation is suggested for the popular name of "ladies tresses" as applied to Spiranthes cernua—that is, that the latter word is a corruption of "braces," the old English term for the silken bodice fastenings which the plant so closely resembles. Whilst on the subject of names, one or two other instances may not impertinently be cited. Professor Meehan confesses himself baffled as to the derivative meaning of "Rose," and inclines to the idea that the name, with its Greek and Latin equivalents *rhodon* and *rosa*, may be referable to some early word signifying red, the typical color of the flower. Much more probably, however, all alike have their origin in an early Aryan root-form, meaning simply *flower*, *i. e.*, the flower *par eminence*. We shall find such a form existing amongst the primary words of the Romany tongue, which are indubitably Prâkrit, as *rosho*, with this identical meaning. Again, it is puzzling, as the author remarks, to understand why the pretty little Houstonia cœrulea should have acquired the name of "bluets," which is, of course, the French name for the common bluebottle (Centaurea Cyanus), which the plant in no way resembles. It is not quite correct, by the by, to identify the harebell with the wild hyacinth or English bluebell; it is in reality a campanula; but, unlike the bluebell of Scotland, each stem supports only a single flower, and the habitat of the plants is somewhat different, which may possibly be owing to the divergence in growth. The author draws attention to the great adaptability to decorative design of the leaves of Geum triflorum, or three-flowered avens. The truth of this must at once strike every one with an artistic eye, and the remark might be wisely extended to several other plants represented in these volumes, such as, to mention only two or three examples, Thalictrum dioicum (early meadow rue), Limnanthemum lacunosum (floating heart), or Calla palustris (bog arum), which last, especially, with its thick glossy leaves and snowy flowers, would be most effective in mural decoration. Those who practice this now fashionable art would do well when in search of fresh designs to glance over Mr. Lunzer's drawings. It is interesting to notice the connection between some of the flowers here represented and cognate members of the same families familiar to us from childhood; and one cannot but feel a little compassion for our cousins, on reflecting how many of our oldest favorites they lack, to think that, except under cultivation, they have neither daisies, primroses, pansies nor tulips, that ivy is almost unknown to them, and that, as the present author testifies, their violets have little or no scent. Who would willingly give up any of these "wildings of Nature" for the most gorgeous of foreign blooms? Professor Meehan touches more than once upon the rather common and decidedly utilitarian theory that the only use of color is to attract insects; and those who are simple enough to believe that the Allwise and Beneficent Power may have had some broader object in the work of Creation than the bare providing against extinction of particular vegetable forms, will be glad to see that it evidently meets with but small approval; that the author, in fact, is disposed to agree with the "good thinkers" who maintain that "mere beauty is as essential as the more material things of life." It has been a real feast to the eye, as well as to the understanding, to go through these beautiful volumes, and the only feeling in closing them is one of impatience for the completion of the work. The book is one which nobody should miss an opportunity of inspecting.

ESSAY ON ROSES.—By Mrs. M. D. Wellcome. Published by I. C. Wellcome, Yarmouth, Maine. This essay was read before the Maine Pomological Convention, and has been revised by the authoress for its appearance in the present pamphlet form. It gives a succinct history of the rose, with many facts of practical value to culturists, drawn from modern experience.

THE SOCIETY FOR THE PROMOTION OF AGRICULTURE.—This body, organized last year at Boston, will hold its first annual meeting at Cincinnati, on September 16th, the day before the meeting of the American Association for the Advancement of Science, which convenes in that city this year. Prof. W. J. Beal, Lansing, Mich., is President; G. Lewis Sturtevant, South Farmington, Mass., Secretary.

AMERICAN ASSOCIATION OF NURSERYMEN.—This body met at Dayton, Ohio, this year, on the 16th of June.

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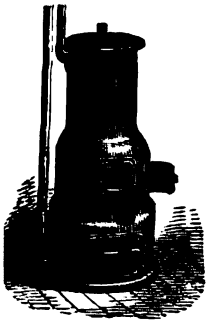

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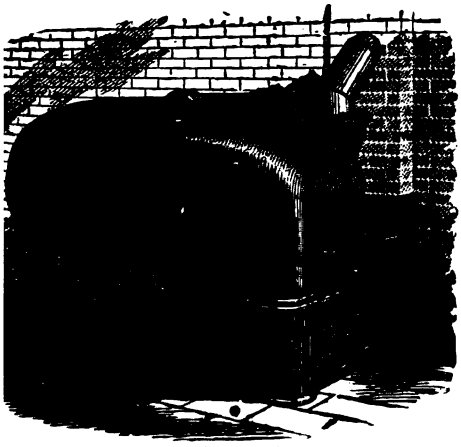

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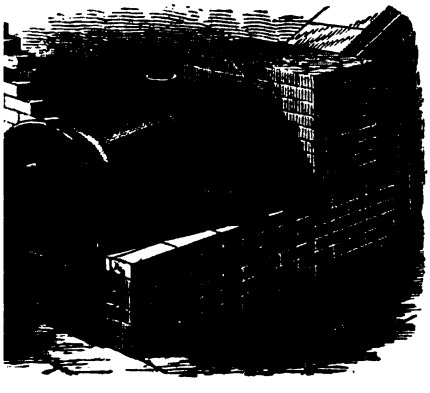

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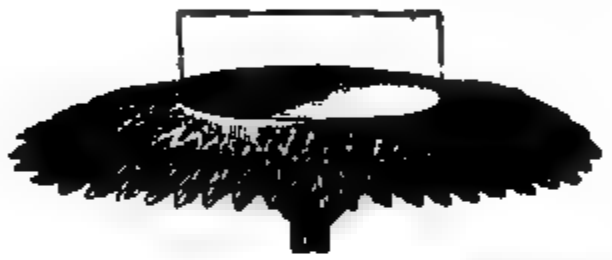

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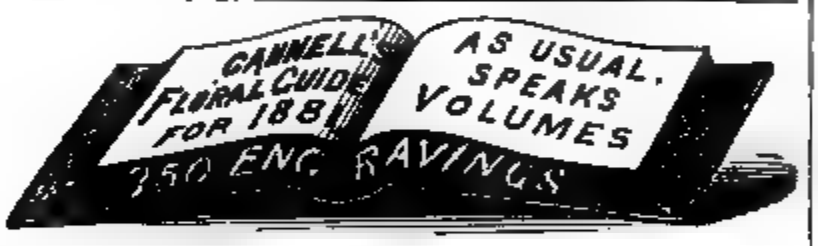

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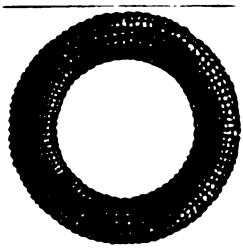

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AND

HORTICULTURIST FOR 1881.

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THE

GARDENER'S MONTHLY

AND

HORTICULTURIST.

DEVOTED TO HORTICULTURE, ARBORICULTURE AND RURAL AFFAIRS.

Edited by THOMAS MEEHAN.

Vol. XXIII. AUGUST, 1881. Number 272.

FLOWER GARDEN AND PLEASURE GROUND.

SEASONABLE HINTS.

Passing through a street in Philadelphia, on which blocks of first-class houses had been erected on both sides, but evidently by two different owners, there appeared to be a wonderful difference in success by street trees alone. There was a pretty row of Carolina poplars on one side; on the other side no trees at all. This side had innumerable notices of houses "to rent," but on the tree-shaded side every house was occupied. Both blocks appeared to be houses of about equal age and value, and there was no apparent difference between the two. There seemed every reason to believe that the presence of trees alone had given the one side the great advantage. These Carolina poplars are, by the way, admirable street trees, because they bear clipping better than any other; and, in the closely built up portions of cities, it is not always desirable to let trees have wholly their own way. To our mind these poplar trees, with just enough trimming of the tops to give the whole line an uniform appearance, was much prettier than if the line had been all ragged and torn. Though we would thus far sanction the practice which makes a tree look shaven and shorn, the pruning should be confined to the wood of last year. Trees lose roots in proportion as the tops are cut away, as every one must know who has seen the severely pollarded trees of some Philadelphia streets. They lean over, or wholly blow down. They had, in times past, lost roots that should sustain the heavy trunks.

But all this has been gone over before in our columns, and we often wonder if ever the necessity for repeating things continually will come to an end. Here is a neighbor of ours who three years ago made a lawn, sowed his grass seed, and a crop of wheat with it. The wheat was cut before quite ripe, but there was no grass. Again in the fall it was done, and again last fall, and in driving by there was again the identical wheat crop, almost ready to mature. And then we happened to meet our good neighbor a few days ago. "Where," says he, "can I get good lawn grass seed? I have sowed some three times from different seedsmen, and have been cheated every time." "Why," said the writer, "did you let the wheat grow? Have you not read all about this in the GARDENER'S MONTHLY?" "GARDENER'S MONTHLY," says he, "what's that?" So we saw how it was. There are new people coming on every day. It takes time for them to even know that there is a gardening magazine to which they should come for cheap information. It is necessary, therefore, to say over and over again, that rye, wheat or oats sown with grass in the fall is only that the coarse leaves may fall down over the finer grass when the winter comes, and thus prevent what is known as thawing-out. No respect should be paid to these grain plants in the spring, but the lawn should be mowed regularly as if there was nothing but grass there. To

allow the grain to grow as this gentleman has done, is to dry the ground completely, and seriously cripple or destroy the young grass plant. It is about time to think of these things, for ground work around new country homes will soon be in order. In preparing the grounds, it should be remembered that grass and trees are not only required to grow therein, but that they must grow well. The top soil of the lot is often covered by the soil from the excavations, trusting to heavy manuring to promote fertility. But this is a too slow and expensive process. The top surface soil should, in all cases, be saved, and replaced over the baser soil. Also, where it is necessary to lower a piece of ground, the top soil should be saved to place over again. The depth of the soil is an important matter, both for the trees and the lawn. It should be at least eighteen inches deep. In shallow soils grass will burn out under a few days of hot sun. In a soil eighteen inches deep a lawn will be green in the driest weather. For the sake of the trees, also, the ground should be not only deep, but rich. If from thirty to forty loads of stable manure to the acre could be appropriated, it would be money well spent. Life is too short for it to be an object to wait too long for trees to grow, and planting large ones is an expensive, as well as an unsatisfactory business. A tree in a rich and deep soil will grow as much in one year as in five in a poor one. So in preparing a lawn, it is fortunate that, while aiming at the best effects, we are helping our trees also. It is generally best to sow for a lawn than to sod, where much of it has to be done. The edges of the road must, of course, be sodded, the balance neatly raked over and sown. The best kind of grass to be employed in seeding is a disputed point, and it will, no doubt, depend in a great measure on the locality. Philadelphia and northward, the perennial rye grass is excellent. It commences to grow very early, and has a peculiar lively, shining green. South of Philadelphia it is very liable to get burned out in summer, and the Kentucky blue grass would be much better. It is much the best to have but one kind of grass for a lawn, provided it is suited to the locality. A mixture of kinds is apt to give a spotted and variegated character, not at all pleasing. Some people like to see white clover growing thickly in a lawn and others object to anything but green. However, if a good grass rake is employed freely in summer time, the heads of these flowers may be kept from expanding. Where there is a prospect of a month of growing weather, lawns may still be sown with grass seed —the clover, where used, to be kept for sowing in April or March next. A small quantity of rye should be thinly sown with the grass, which, by the shade it affords, will prevent the grass from being thrown out by the frost. The rye must of course be closely cut in the spring to allow the grass to get ahead of it as already stated.

COMMUNICATIONS.

VANILLA GRASS.

BY MRS. H. E. WHITE, BRYAN, BRAZOS CO., TEXAS.

I should like to call attention to the vanilla grass, as it is known but in few localities, having been modestly kept in the background too long for general good.

The seed was gathered in a wild field on the coast of the Sea of Marmora, a few miles from the village of San Stefano in Turkey, by Dr. Jas. B. Davis, of South Carolina. Upon his return home, he planted the seed and it came up readily, seeded well, and could be rapidly propagated by division of the roots. It makes a fine grass for borders and grass plots in flower yards, both for its fresh, tender, green blades, and for its delicious fragrance.

A friend of mine had a large field for the cultivation of grasses, and he stated that when he turned his cattle into the field they always "made a rush" for the Vanilla grass in preference to all others, I have not been so situated myself as to use it for anything but a border and kitchen-garden grass.

The blades when slightly touched emit a delightful vanilla perfume. Gathered and strewn in among bed linen, they lend a clean, wholesome odor that ranks next to lavendered sheets. Laid in with woolen garments it is a fine preventive against moths.

A bunch of it tied up in muslin and boiled in milk to be used for custard, *blanc mange*, creams and *Charlotte russe*, will give a flavor that cannot be told from the vanilla bean itself. I used it in this way for years and can testify to its merits for flavoring. There is no reason why every woman should not have a small bed of this grass for cooking purposes, and for use in the linen chest and among blankets and other woolens.

I should think it might be used in the manufacture of vanilla extract.

It is a dainty grass for small bouquets, and its vanilla fragrance combines well with the delicate perfume of violets, geranium leaves, pansies, etc. I have used its tender blades in this way frequently, and always with good effect. I hope this grass will receive the attention it deserves.

[While traveling along the French Broad river in North Carolina last year, at a stopping place for the night the hostess, showing the writer her floral treasures, had among the richest the "Vanilla grass," for the seed of which she had paid a good price. The good points were as represented by our correspondent. The only regret was that she should have been led to pay for it a "good price," for it was only the common sweet vernal grass, Anthoxanthemum odoratum, common in low grounds in the North. We are also sorry to learn that there is a good demand in the North for the grass in order to "get a good price" for it under the new name of "Vanilla grass."—Ed. G. M.]

GARDEN SCIONS.

BY CANTAB, BOSTON, MASS.

IX.

A Golden Alternanthera.—This, called Alternanthera paronychioides major aurea, is causing quite a sensation around Boston. Messrs. Sheppard, of Lowell, introduced it last fall from England, and their utmost exertions, so far, are unable to furnish the demand. Indeed, one or two parties have each ordered far in excess of the supply, so great is the rivalry among our gardeners for bedding preeminence.

Senecio speciosus is another new groundsel from South Africa, with large magenta-red flowers, a glowing reputation, and is said to be a perpetual bloomer—outside in summer and in the greenhouse in winter. Some months ago I got a packet of seeds of it and sowed them but not a plant came up. But the fault may have been mine.

Raising Seeds.—But seeds are funny things anyway. I sow Chinese Primroses, Cyclamens and Browallias and expect that every seed will germinate and grow up, cockscombs about half, mignonette the same, and so on. Sometimes one species will come up right away and another of the same genus not for a year afterwards: witness Corydalis aurea and C. nobilis. Many seeds come up irregularly, that is, a few may germinate in a week or two and others keep coming for months. For instance, in a box containing one-year-old Agaves from seed, I sowed some Torenia Fournieri last January. In four weeks afterwards I pricked off the full crop as then visible of Torenias, and repeatedly since then, and even now, May 1st, there are some in the box. The seeds were not of different ages; they were of last year's crop and gathered by myself. But old seed of Torenia is just as good as new. And this diversity in time of germination is apparent in most kinds of plants, though much more perceptible in some than others, and under artificial more than natural conditions of raising.

LILY CULTURE.

BY W. F. BASSETT, HAMMONTON, N. J.

In collecting L. superbum, a few years since, I found one growing in coarse sand washed from the road, and it was three or four times larger than average bulbs, and a lot of several hundred collected from a bog that had been sanded and planted with cranberries, were nearly all extra large and fine. These were growing in a mixture of sand and muck and a rank growth of grass, etc. around them, and with ditches to keep the water at a certain level. Lilies are so likely to rot from manuring that there is some difficulty in keeping up the fertility of the soil, and I had thought of applying a very weak solution of guano. Will there be any danger from its use? [Perhaps so.—Ed. G. M.]

GARDEN GOSSIP FROM SOUTH CAROLINA.

BY A CHARLESTON LADY.

May I take the liberty of asking if you have visited this State, and if so, if you have seen the Rev. Mr. Drayton's Azalea and Camellia garden on the Ashley River? If not, I can assure you it would be well worth the journey, if you came for nothing else. This spring we measured a plant (a blaze of beauty) twenty feet across and twenty feet high; others were equally large.

As there is much talk about "the freezing of sap," I must give you a curious example of recovery. An oleander (double rose) in my garden, about five feet high and very bushy, was apparently killed by our fearful ice storm of December last. The whole plant has up to the present time looked dead, the leaves not fallen but burnt up as dry as possible—the stems twisted. The ice lasted I think five days, every green thing in the garden encased in it. The

hollies weighed to the ground, the live oaks crashing to the earth, and now their beauty ruined for many a day. In fact, twenty years would not renew the work of that storm. But to return to the oleander. The other day I perceived that the dry stalks had green patches along them, and to-day tiny green shoots are visible everywhere. The oleander generally blooms with us the last of May, consequently my plant has made no effort till almost flowering season. I must add that all through the village the apparently dead oleanders have been pulled up and thrown away as hopeless.

My lemon trees are killed, the orange trees recovering.

This spring the weather is so cold that I do not feel any inclination to leave my cottage, which is now bright with beautiful roses. I am very successful with rose cuttings, and in our three-years-old garden with a miserably sandy soil, have already quite a number: Cloth of Gold, Niel, Jacques, Duchess of Edinburgh, Niphetos, Cooks; but fail miserably with Perle des Jardins, and why, I can't imagine.

SHADE FOR THE CITY POOR.

BY REDWOOD CALEHOPPER.

Over a number of the pathways in Central Park arbors are thrown, the vine-covered roofs of which shade a group of seats and a bit of surface, yielding the pedestrian the opportunity of taking a double rest, that of body and eye. As the millenium draws near this comfortable idea will be brought into town, and planted where accessible along our sidewalks.

It is one of the things which belongs to an unselfish era, the approach of which we sometimes wish was not placed so far away in the future.

During that happy period, I presume our street roadways will have become grassy lawns, for the off-foot travel will all be above or below the surface; and the horse, poor abused beast, will be a sleek and well-fed managerie pet.

Then, too, the Good Book tells us the mountains are to be brought low and the valleys filled, which tempts one almost to suppose that town nor country will be so distinct from each other as to be separately distinguished, but both will be merged the one into the other.

Meanwhile much may be done for the townsmen, a large crowd, who are tied by misfortune or the unhappy combination of too numerous a family with too small a purse, to a sweltering existence in a brick-lined summer atmosphere, by the coming *Society for the Amelioration of the Miseries of a Forced Summer's Sojourn in the City.*

The work on hand for this society is large and important, and its speedy advent is desired and anxiously looked for.

EDITORIAL NOTES.

PHILADELPHIA CITY SQUARES.—In former years we have had to note the disgustingly filthy condition of these places. Though not yet what they should be, it is a pleasure to note a marked improvement. They are by no means as dirty as they used to be

CHRYSANTHEMUMS IN JAPAN.—We do not know whether the Japanese have a national flower, as England has the rose, Scotland its thistle, or Ireland the shamrock, but the regard which they seem to give the Chrysanthemum approaches something like national reverence. The order of the Chrysanthemum is among the highest of their national honors. The *Monthly Bulletin* of the Society of Acclimatation of Paris, as translated by the London *Gardener's Chronicle*, has the following about a blue Chrysanthemum: "A variety of the Chrysanthemum exists in Japan with blue flowers. It is represented very frequently on Japanese porcelain, both ancient and modern, especially that of Satsuma and Kioto; it also appears on *cloisonné* enamels and embroidery. In the *History of Nin-toku-ten-wau* the following passage occurs: 'In 886, in the seventy-third year of his reign, seeds of the Chrysanthemum were first introduced into Japan from a foreign country, both blue, yellow, red, white and violet.' The Japanese commentator remarks: 'By a foreign country is meant the kingdom of Paik-tse, one of the States of Corea.' (*Bull. Mens. de la Soc. d Acclimatation*, January, 1881, p. 54.)"

FLOWER CULTURE ON CANADIAN FARMS.—The Toronto *Globe* says: "The taste for flowers is decidedly on the increase, particularly among people living in the country. The genuine Ontario farmer, of the school which is now passing away, is a hard-fisted, hard-headed old man, and sets his face resolutely against the waste of time and trouble in attending to ornamental gardening. But the boys and girls are growing up, and as there are visitors and callers during

the summer they want to make things about the house look as well as possible. Besides when John calls on Mary and she accompanies him down to the gate to bid him good night in a pleasant little interview of about three or four hours, it seems 'nice,' as she says, to be able to pluck a rose or some other beautiful flower, from her own garden, for him to wear in his buttonhole. Then the good lady of the house, with the help her sons and daughters afford her finds she has more time than formerly, and can undertake the care of a lot of flowers in order to amuse herself. The 'old-fashioned flowers,' as marigolds, dahlias, and others have been called, are still cultivated; the rage for new varieties, holds sway only among a certain class of semi-professionals who devote the greater part of the not inconsiderable spare time they have to the cultivation of the garden. On every side the taste for lawns is growing, and in many cases in both country and city green turf has almost entirely supplanted flower beds. The orders from the farmers for field seeds usually end with a list of flower seeds, and after that not at all unfrequently is the order to send forward the raw material for a lawn."

THE CYPRESS GROVES OF THE CITY OF MEXICO.—The following interesting sketch of the famous trees of Taxodium distichum, is from the pen of Moses Thatcher, in the *Contributor* of Salt Lake City: "For quiet repose and peaceful meditation, the cypress groves of Chapultepec afford perhaps the most attractive features of any spot near the city. The castle, located on the abrupt rocky hill is quite massive and imposing. It has recently undergone many improvements of a desirable character, which add much to the beauty of the place. Here is the National Observatory, a position well chosen, healthy and beautiful, while affording the most attractive view of the surrounding country.

Between it and the end of the Paseo, leading to the capital, stands a monument of gray sandstone recently erected to the memory of the national cadets, who, refusing to retreat, fell in battle September 12, 1847, when our countrymen, under General Scott, gained the victory which led to the surrender of the capital a few days later. There are in the park probably not less than a thousand fine cypress trees, whose planting by the Toltecs (Nephites) antedates, perhaps many centuries, the rise of the Aztec empire. Some of these are nearly fifty feet in circumference, and from one hundred to one hundred and twenty-five feet in height, with huge limbs extending all around to a great distance, and being always clad with dry, bronzed and fresh green leaves, mingling with drooping silvery mosses, form the most enchanting bowers imaginable. The arrangement of these trees is in groves and double rows, sometimes crossing at right angles and affording splendidly shaded narrow avenues. An exceedingly fine spring of pure water gushes from the rocks of the south side of the hill. Three hundred and seventy years ago the waters of this spring were conveyed by the Aztecs to the city, through an aqueduct of masonry constructed for the purpose. A portion is now forced with a steam pump for use in the gardens of the palace above; while the remainder still flows to the capital."

PURPLE-LEAVED BERBERRY.—There may be rarer things, but surely not one prettier than the purple-leaved Berberry. In the early spring the leaves appear among the first, and dark-leaved from the start. By the middle of May the orange brown flowers, in pendent clusters, give the mass of purple a peculiarly rich appearance. In the fall the bushes are covered with brilliant red berries, which endure till frost. The bush itself is very pretty as a single specimen, taking on a good form without much aid from art.

RIDLEY PARK.—An English gentleman spending a few weeks near Philadelphia, recently, expressed himself particularly pleased with the suburban gardening, which he said reminded him more of England than anything he had seen in the United States. Germantown, West Philadelphia, and Ridley Park especially, commended themselves to his good taste. The last named is a comparatively new district, but is fast growing in popular estimation. It was designed as a suburb of Philadelphia by the late Robert Morris Copeland, and is a very pleasant spot.

NEW AND RARE PLANTS.

THE WEEPING DOGWOOD.—Our readers may remember that a few years ago Dr. Thompson, of Maryland, advertised for sale the original plant of a weeping dogwood, found by him in that State. The plant was purchased by one of our nurserymen for propagation and sale, and from a plant raised from this original the present illustration has been taken. The photo-

graph was taken in June, when in full leaf, so as to show the rich heavy character of its foliage. It is unique among weeping trees in this, that while all the lateral branches are as pendulous as a weeping beech, the leading shoot is always perfectly straight, thus making no necessity for grafting high up on a stock, as in other weeping trees. The plant illustrated is from a graft put in the common dogwood near the ground. No

WEEPING DOGWOOD.

attempt has been made to trim or tie this plant. The growth is wholly natural and the plant now about eight feet high.

Probably no weeping plant has so many good points. Belonging to Cornus florida, it will no doubt be hardy almost into the Arctic regions. The straight leading shoot, by which it will rise direct from the ground, has already been noted. The large white floral bracts, for which this dogwood is so famous, will appear in a three or four year old plant, succeeded by its clusters of holly-like berries later in summer; and finally the brilliant red of the autumn leaves, which makes even the common form so valuable in American scenery, are all part of the character of this weeping variety.

SCRAPS AND QUERIES.

PLANTING HARDY ROSES.—Mrs. P., Lynn, Mass., inquires whether fall or spring is the best time for planting hardy roses. Like many other questions, "it depends" must be the answer. If a thoroughly hardy rose, with good roots, be planted in the fall, and can be insured against being drawn out by frost through the winter, it will bloom a great deal better for being fall-planted. All florists put in their pot roses in fall for spring blooming. But if the frost is likely to tell severely on the plants, it will be best to leave the planting till spring, though the flowering may not be as fine.—Ed. G. M.

NEW VARIETY OF MIGNONETTE.—Mr. J. Schultz, Louisville, Ky., writes: "I send you this morning a sample of my white Reseda. I raised it last year from seed. The plant I had last year was in the open border and bloomed very freely. It proves very good for cut flowers in winter."

[This was certainly a very peculiar and distinct form.—Ed. G. M.]

CLEMATIS COCCINEA.—A "subscriber," Kingston, R. I., says: "Please inform me through the MONTHLY if the Cobœa scandens variegata and Clematis coccinea are hardy?"

[Cobœa is not hardy—no Mexican plant stands northern winters. The Clematis is from Texas, and similar woody plants have been found hardy in the North.—Ed. G. M.]

SAXIFRAGA SARMENTOSA.—Mrs. J. P., Lynn, Mass., writes: "Is Saxifraga sarmentosa usually hardy in New England? I have had it come up in my wild garden, among the ferns and wild flowers, for two seasons. The bed is somewhat sheltered on the north-east side of the fence."

[This is well known as hardy about Philadelphia, and we should believe is hardy anywhere in the Union. It is a native of the north of China and Japan, and most plants from these

countries are hardy anywhere in the United States.—Ed. G. M.]

A Beautiful Seedling Rose.—Mr. H. B. Ellwanger, Rochester, N. Y., writes: "By this mail I send a bloom of a seedling rose, which I think will afford convincing proof, were any needed, that we can produce just as fine roses in this country as have been obtained in France and England. I invite you to compare this with any of that lovely trio, Marie Baumann, Marie Rady, Alfred Colomb, believing this to be equal in merit to any of them. It is a carmine-crimson, of the same build as Alfred Colomb, quite as large and as full; the color is more like that of Marie Rady than any other sort. This is the third bloom taken from the plant; two more will open to-morrow and promise to be quite as fine as the specimen sent. The plant remained during the past winter in an exposed position, entirely unprotected, and no surrounding varieties withstood the winter so well, excepting Mme. Jolly and General Jacqueminot. It is a seedling from General Jacqueminot and seems quite as vigorous as that sort, but the wood and foliage more resemble Alfred Colomb."

[We are glad to find, by this beautiful and distinct rose, that Mr. Ellwanger's enthusiasm has been so well rewarded.—Ed. G. M.]

Rose Jaune Deprez.—Mrs. A. T. M'C., Wilkes-Barre, Pa., writes: "It may not be exactly in order to trouble you with so small a matter, but I have tried in many other ways to find a favorite old rose that I fear is no longer in the market, and finally turn to you for aid in my search. It is an old Noisette, named Jaune Deprez. I have sent for it to a number of florists, and they all (with the exception of Mr. Dreer) send me something else. He frankly says he hasn't it, and does not know of any one who has. Buist always kept it, but I believe his establishment is closed since his death. At any rate, I do not know their number. If you will be kind enough to answer my inquiries after the rose in the Gardener's Monthly, or any way you please, I will be very greatly obliged to you."

[It is not usual to refer to trade matters in the reading columns of the magazine, but as we believe this beautiful Noisette rose is not now in the trade, we shall be glad to know whether it really is or not. Miss H. Buist still preserves some of the greenhouses for commercial purposes.—Ed. G. M.]

GREENHOUSE AND HOUSE GARDENING.

COMMUNICATIONS.

MOSS MULCHING.

BY W. A. M., PHILADELPHIA.

I have found moss very beneficial as a mulch, but not allowed to remain too long; otherwise the young and delicate roots will follow up the moisture to the surface, to the great detriment of the lower or main roots. And woe betide the young and tender roots should the plants dry out thoroughly after they have penetrated the porous moss.

PORPHYROCOMA LANCEOLATA.

BY CHARLES G. PARNELL, QUEENS, L. I., NEW YORK.

The lance-leaved Porphyrocoma, Porphyrocoma lanceolata is an old hothouse plant of rare beauty, belonging to the natural order Acanthaceæ. It is a plant of very easy culture, and is to be found only in a few collections, but it is well worthy of being introduced into all collections of rare and beautiful plants. It is a perennial hothouse plant, attaining a height of about one foot, with dark green opposite lanceolate leaves, the leaves being slender at the base, producing its flowers in terminal and axillary spikes. The flower spikes are of a rich purple color, and are deeply four angled. The corolla, or as it is by some termed the flower, protrudes far beyond the bracts, and thus gives the plant a rather singular and attractive appearance. It requires for its successful cultivation, a compost of two-thirds well-rotted sods and one-third well-rotted manure and good drainage, a temperature of 55°, and during its season of

growth a moist atmosphere, and an abundance of water. Its period of growth is during the winter months, and the beautiful tufts of flowers are produced about the first week in February, and continue in perfection for two or three weeks. After the flowering season is over do not water so freely, and about the middle of May turn the plant out of its pot; reduce the ball of earth about one-half, and plant out into a partially shaded, well prepared border, from whence it should be taken up and potted about the middle of September. When taken up and potted it should be placed in as small a pot as possible, and when it commences to grow it should be shifted as often as is necessary, and on no account should it be allowed to become pot bound.

Propagation is readily effected by seeds which are freely produced, and it could also be increased by cuttings. If the seeds are sown as soon as ripened in a pot or pan of well drained, light sandy soil, and the young plants liberally treated, fine flowering specimens will be obtained for another season. With a number of plants and a little care and attention as to management, &c., a succession of bloom could, I think, be obtained during the late winter and early spring months. Care should also be taken to keep this plant at all times free from insects.

The generic name is derived from "porphyron" purple and "koma" head of hair in allusion to the richly colored spike from which the brightly colored flowers appear.

ABUTILON "FIREFLY."

BY MRS. M. D. WELLCOME, YARMOUTH, MAINE.

This novelty of the present year comes to me from England, from the "Home of Flowers," at Swanley, with the compliments of H. Cannell & Son. Mr. Cannell says of it in his *Floral Guide:*

Firefly (Swanley Red) by far the highest and brightest color of all the family; habit dwarf, and one of the freest bloomers, throwing out flowers on strong footstalks of the finest shape; certainly one of the noblest, and when grown in a pot it flowers all winter, and all the summer when planted out, and forms one of the best flowering shrubs that we possess.

Parentage.—Mr. George states that he sometime since flowered a small red variety, which had a very lively shade of color, and determining to make this a seed parent, it occurred to him to use it on the pollen of the single deep color Hibiscus, which like the Abutilon is included in the natural order Malvaceæ. Mr. George thinks the fine color seen in this new variety, firefly, is due to the happy inspiration of impregnation. It seems to show a marked advance amongst those useful and attractive greenhouse plants.

The following is from the *Gardener's Chronicle:* "A red abutilon, one of a batch of recent seedlings raised by Mr. J. George, of Putney Heath, well deserves the foregoing appellation. The flowers are of large size and of a much greater depth and vividness of color than that possessed by any variety in the Chiswick collection. It has been provisionally named firefly, and we believe the stock has passed into the hands of H. Cannell & Son, of Swanley, for distribution."

We can hardly expect this novelty to be sent out the present year by our own florists, but those who are in haste to obtain it, can do so without very long waiting by sending to Mr. Cannell.

The packages of plants received were in as fine a condition as any that have come to us from our own florists, and were a very great surprise, being wholly unexpected, and a very pleasant one also.

THE CAPE JASMINE.

BY CHARLES E. PARNELL, QUEENS, L. I., NEW YORK.

In the GARDENER'S MONTHLY for April, 1881, page 110, Miss M. W. asks for information concerning the Cape Jasmine.

In reply I would say that it is a native of China, from whence it was introduced in 1754. The Cape Jasmine, Gardenia Florida fl. pl. is an evergreen shrub with elliptical leaves and large pure white deliciously scented double flowers, which are produced in the greatest abundance on well grown and healthy plants, from June to October. It requires and must have treatment adapted to its wants, and unless this peculiar treatment be given it, it should not be expected to flower, or give satisfaction as a window or greenhouse plant. It must have good drainage, a compost of two-thirds well-rotted sods from an old pasture, and one-third well-rotted manure or leaf mould well mixed, not sifted, also a light situation and a moist atmosphere. Water should be given as often as necessary and frequent sprinklings or syringings are indispensable to its doing well. During its season of growth it requires a temperature

from 65° to 75°, a moist atmosphere, and water should be abundantly given. When at rest, or during the winter season it should be given less water and kept in a cool rather dry atmosphere at an average temperature of 45°.

It is not often grown successfully in rooms owing to the dryness of the atmosphere, and when grown in rooms it is very subject to the attacks of the scale, red spider, and mealy bug, and as these insects increase with great rapidity in the hot dry air of our rooms the plant is soon injured beyond recovery. During the summer season the Cape Jasmine should be planted out in a well prepared border or plunged in a partially shaded situation where due attention should be given as to watering, &c.

The Gardenia is said to be one of the favorite plants of the Japanese who use it for hedges, and who also plant it near their houses and in the walks of their gardens. The fruit and seed of the single species are also used to dye yellow.

Whether grown in the greenhouse, window or garden an occasional washing of the leaves and stems with whale oil soap and water will prove of benefit to them.

CENTAUREA GYMNOCARPA.

BY J. M., SHARON, PA.

I have noticed in the MONTHLY inquiries about the dying out of the Centaurea gymnocarpa. I believe the principal cause of the Centaurea dying in the summer is its being planted out when it is too much pot bound. I may be mistaken. I have had the same trouble, but never with the following treatment:

In taking my cuttings, I do so late, after most other bedding plants are killed with frost. I strike them in the Azalea house, either in a box or in the bench, never at any time keeping the sand too wet, just damp enough to prevent flagging, letting them stand in the bench until the beginning of February. In this way ninety per cent. of them will have rooted. Then pot in two-inch pots, and when once established and growing freely, cut them back to two or at most three eyes. This prevents flowering. If punched higher they are liable to still run to seed. By the first week in April they will have filled the pots with roots, and made nice bushy little plants. They should then be shifted into four or five-inch pots. I have planted out plants treated in this way; also those left in the two-inch pots. Those planted from the two-inch pots dying in patches and looking ragged all the season; those from the four-inch remaining without a break until long after frost, and pulled up in splendid condition when the beds were cleaned.

ORNITHOGALUM AUREUM, OR GOLDEN STAR OF BETHLEHEM.

BY JAMES C. CRAVEN, PHILADELPHIA, PA.

It may be interesting to some of the readers of the GARDENER'S MONTHLY to hear of a plant, which although frequently found in greenhouses on the other side of the water, is rarely met with in this country. I have not been able to find it in any of our catalogues of plants (excepting Buist's), but some months since a friend, who is a lover of rare old roots, gave me a plant of the above name. It has now, June 1st, been in bloom several weeks, and may last for a month longer. The plant is small; flower stalk about eight inches high; flower star-shaped, of an orange-golden color, and leaden eye. It expands fully in the sun and closes somewhat at night. The odor is faint but agreeable.

An English work in treating of the plant says, that it blooms about once in two years, is of very slow growth, but when in bloom retains its beauty for a long time. This plant may not be a rare one to many readers of the GARDENER'S MONTHLY, but it is to me, and lovers of bulbs, like myself, may be glad to hear of it.

EPIDENDRUM VITELLINUM MAJUS.

BY A. J. E.

Having read with interest the article on Epidendrums in your May number, page 139, I could not help writing a few lines on the above, which, I think, is a most charming orchid and of easy culture, provided it has plenty of water. It will grow almost in any temperature, the cooler the better. The best way I have found to grow this orchid is to fasten it to a block of wood, or a slab of burnt clay; not using any moss, as it does much better without, and give it plenty of water; in fact, it never ought to be allowed to get dry, not even in its resting season. I have found the more water it gets the better the plant looks, the leaves fresh and green, and the bulbs plump. Amongst the many plants that I had I used to dip one in the tank many times in a day, and the more I dipped it the better it looked. I ad-

vise those who have plants of the above to try my system, and I think they will be rewarded for their trouble with fine healthy plants and an abundance of flower, which they can look at for at least two months, if kept in a cool, airy house. There are several varieties of this plant, like most other orchids, some of which are much larger than others. Of course Majus is the best, being the largest, but however small those bright orange scarlet flowers may be, they are beautiful.

EDITORIAL NOTES.

ORCHIDS.—August Rölker of New York, is doing good work in introducing Mexican orchideæ.

CARMODY'S BOILERS.—Several well known western florists speak highly of these greenhouse boilers.

HOW TO MAKE WAX FLOWERS.—Wax flowers make a pretty substitute for natural flowers. They may be made with such skill as closely to resemble the natural plant in everything save perfume, and the manufacture of them affords an opportunity for the exercise of great neatness and good taste, as well as observation of the nature and structure of the flowers which it is intended to represent. But little instruction is necessary in learning to make wax flowers. The wax is sold ready prepared in small sheets of various thickness and of almost every shade to be seen in nature, and those that are not exactly the tint can be readily made to assume it by the help of powdered colors.

To begin a group of wax flowers it will be enough to procure one dozen sheets of Nos. 1, 2 and 3, in the best white wax; three shades of yellow wax, six sheets of each; six or seven shades of green, from the light green of the primrose leaf to laurel and myrtle green, six sheets of each.

The colors are sold in little bottles; the most useful are carmine, three shades of ultramarine blue, three shades of chrome yellow, flake white, burnt umber, a bottle of bloom, and one of liquid transparent gall.

The implements required are a pair of small finely pointed scissors, which must never be used for any other purpose, a palette knife, six small sable brushes, some small saucers for mixing the colors, box-wood tools with smooth round tops for rolling the wax, steel pins with glass heads for the same purpose, wire covered with green, in three sizes, for the stems, and two shades of green down. Some people use tin cutters for the leaves, similar to paste cutters, but they are not absolutely necessary, as most beautiful wax flowers can be made from a tracing of the natural leaf by laying it on a piece of white paper and tracing the outline with a pencil.

A Camellia japonica is one of the easiest flowers to make, the leaves being large and of four sizes only. If the cutters are not available, take a large camellia, study well its appearance, the way in which the leaves grow, and their sizes; then pull off one of the most perfectly-shaped of the large outer leaves, lay it on a bit of white paper, and trace the edge round with a pencil; do the same with the smaller leaves; then cut out these diagrams; take a sheet of the thickest white wax, lay the diagram on it, and cut out ten patterns or leaves of the largest size, eleven leaves of the next size, eleven of the third size, and eight of the fourth; take a piece of strong green wire eight inches long, make a ball the size of a large pea of white wax on the end of the wire, lay a leaf of the fourth size on the palm of the left hand, and with the head of the box-wood tool rub the edge of the leaf till it becomes thin; pinch and crumple it so as to resemble the natural leaf; put a slight tint of yellow, as in the real leaf, and stick each leaf round the ball of wax, pressing it close; and when all the leaves are put on of this size, bind them with the parings of the wax. Follow on with the other leaves, making each row more open, till the last and largest leaves, which almost lie back from the the stem in a horizontal position.

A red camellia is made with pale yellow wax, which is painted over with carmine; this gives exactly the deep shade of the natural flower. The leaves of the rose are the same shape as the camellia. For the green leaves it is best to buy artificial leaves of muslin, and coat them over with green wax the proper shade, taking care to preserve all the veins and markings in the wax surface. The closer the imitation of nature, the more beautiful the flower will be; nature, therefore, is the book to study.—*Pictorial World.*

NEW AND RARE PLANTS.

BOMAREA CARDERI.—Lilies and Amaryllids have much in common. One of the chief distinctions is that the lilies have the fruit superior, the amaryllids fruit inferior. By this we mean

that the petals and sepals, in these plants called the perianth, seem on the young seed vessel in the amaryllids, and below it in the lilies. We see therefore by our cut that the Bomarea is one of the amaryllids. Most of the amaryllids known to our readers are low bulbous plants, but

BOMAREA CARDERI.

the Bomarea is a climbing greenhouse plant, and is of great beauty. It is properly one of

an old, and in the days of the old gardeners, well-known genus called Alstrœmeria, and as the writer of this saw it when it flowered in Mr. Bull's new plant establishment a few years ago, we do not know now any reason why it should not be an Alstrœmeria. Sir Wm. Hooker, however, seems to have considered it to have some good distinctions from Alstrœmeria, and so with such good authority we must let the name go as it is.

There are some half a dozen of those allies of Alstrœmeria known as Bomarea, all pretty. But of this one Mr. Bull says, and with which we wholly agree:

"The most beautiful of the Bomareas yet introduced. It is a glabrous twining plant, with dark purplish stems, and produces its charming bell-shaped flowers in pendulous terminal umbellate cymes; the large heads of blossom making the plant a most attractive object. The individual flowers, in size and shape, remind one somewhat of those of *Lapageria rosea*, but are rather more contracted towards the mouth, and of a lighter rose pink color, and the ends of the segments are spotted with purplish brown. It has been sent from the United States of Colombia by one of my collectors, and is an extremely handsome greenhouse climber."

SCRAPS AND QUERIES.

Variegated Fuchsias.—H. J. Purdy & Co., Seneca Falls, N. Y., write: "We also have several plants of a variegated fuchsia raised by us from a sport from Arabella Improved. The leaves retain their color now to the third generation. It is a strong grower under high culture, has the blossom of the parent plant, and has altogether a very pretty appearance. Until your answer to the letter of J. R. & A. Bather, of Clinton, Iowa, we were flattering ourselves that at some future day we were going to offer to the public a valuable acquisition to the catalogue of fuchsias. The foliage is very pretty, and when exposed to the sun looks very much like the leaves of geranium L'elegante."

Heating a Greenhouse by Two Fires.—Albert Williams, Sharon, Pa., writes: "Can you give me any information in regard to the system of heating three greenhouses with two fires as shown in the late edition of *Practical Floriculture*, that is as to its utility, cost, &c.? I should be glad to hear through the Monthly from some one who is using the system."

Bulbs on the Stems of Lilium candidum.—Mrs. M. P., Lynn, Mass., says: "Amongst a lot of Lilium candidum I had in the greenhouse this last winter, one plant when of proper size to be crowned with flowers, as all well behaved lilies should be, developed instead a tiny green bulb, which soon increased to an inch or more in diameter, then sent up a green spike of leaves, and roots half an inch long formed at the base. I cut it from the stalk, potted it and it has made quite a growth. The plant was as large and thrifty as those that blossomed. As Artemus Ward used to say, 'Why is this, thus?' Can any one explain?"

[It is unusual for Lilium candidum to produce bulblets on the stems, though another white lily, L. longiflorum often does so. Some lilies like L. tigrinum and L. bulbiferum always have bulblets in the axils of the leaves. The habit seems to run in the family, and the only answer as to why, is the child's answer "because." It is a way they have of increasing themselves without the agency of seed, and there are multiform ways of this kind in nature.—Ed. G. M.]

FRUIT AND VEGETABLE GARDENING.

SEASONABLE HINTS.

Some years ago there was much enthusiasm in our country over cold graperies, by which the European grape could be grown under glass; for it is almost superfluous to say no long-continued success has ever followed its culture out of doors. It requires the moister air of a glass house to bring it to its greatest perfection. For some reason the under-glass culture of this grape has

declined. But there are good reasons why it should be popular. It is true there is now so great a variety of good fruits at all seasons of the year, as compared with a few years ago, that those who desire fruit simply without regard to variety have much to choose from. But those who like nice things will still regard a well-grown bunch of the foreign grape as among the chief of table luxuries. We doubt, for the reasons already given, whether this artificial culture can ever be made profitable as a commercial speculation; but those who garden for the sake of the pleasures or luxuries gardening brings, will find much of these in a well-managed cold grapery. Where there are already houses established, there is much to be done at the coming season of the year.

The fruit in cold vineries will now be of a size fit for thinning. In those cases where the bunches are intended to hang long on the vines they should be thinned out more severely than, those expected to be cut early. A close, compact bunch favors mildew and early decay.

Fine, rich color is always esteemed as one of the criterions whereby to judge of the excellence of a fruit. Sunlight is of first importance, but it is not generally known that this is injurious when in excess. In a dry atmosphere, with great sun-heat, where the evaporating process goes on faster than the secretive principle, what should become a rich rosy blush in a fruit, is changed to a sickly yellow; and the rich jet black of a grape become a foxy red. Some grape-growers of eminence, in view of the facts, shade their vineries during the coloring process; but others, instead, keep the atmosphere as close and moist as possible. The latter course detracts from the flavor of the fruit. The best plan is that which combines both practices.

In so far as the open air kinds are concerned, grapes first coming in bearing should not be permitted to perfect large crops of fruit while young. It is excusable to fruit a bunch or so on a young vine, "just to test the kind," but no more should be permitted till the vine has age and strength. Vigorous growth and great productiveness are the antipodes of the vegetable world. Encourage as much foliage as possible on the vines, and aim to have as strong shoots at the base as at the top of the cane; this can be done by pinching out the points of the strong shoots after they have made a growth of five or six leaves. This will make the weak ones grow stronger. Young vines grow much faster over a twiggy branch, stuck in for support, than over a straight stick as a trellis, and generally do better every way. Where extra fine bunches of grapes are desired, pinch back the shoot bearing it to about four or five leaves above the bunch. This should not be done indiscriminately with all the bunches. Too much pinching and stopping injures the production of good wood for next season. These hints are for amateurs, who have a few vines on trellises; for large vineyard culture, though the same principles hold good as far as they go, they will vary in their application.

Watch newly planted fruit trees. If they have but a few weak leaves only, it shows the roots have been injured; then prune them severely, which will make them grow freely. It should be a main object to make all transplanted trees not merely have leaves, but have new shoots at the earliest possible moment. If they are growing very well, they may be allowed to perfect a few fruit. Over-bearing on a newly planted tree is, however, one of the best ways of making it stunted for years.

Strawberries, when grown in hills,—the most laborious but most productive method of growing them,—should have runners cut off as they grow, and the surface soil kept loose by shallow hoeings occasionally. Short litter, half rotted as a mulch, is also beneficial. Lawn mowings are often applied, but with little benefit. Where they are grown in beds, they should not be too thick, as they starve one another, and the crop next year will be poor.

Blackberries are not always ripe when they are black. Leave them on till they part readily from their stalks.

Currants are so easily grown as to require few hints for their management. If they throw up many suckers, take out a portion now, instead of waiting till winter to cut them away. The currant borer is a great pest, eating out the pith of the young shoots, and causing them to grow poorly, and bear but small fruit next year. Gummy "fly-paper" is, we think, the best thing to catch them.

Gooseberries should have the soil, and even the plants, if it were practicable, shaded a little. Dry air about them is one great cause of mildew.

COMMUNICATIONS.

AMERICAN WONDER PEA.

BY WALTER H. COLES, BELVIDERE, N. J.

This new dwarf pea has proved most satisfac-

tory here. I sowed them side by side with William I., March 16th, and picked May 31st. I could see no perceptible difference whatever in earliness. It is an exceedingly productive, very dwarf and compact grower, not exceeding twelve inches in height with me. It must be an excellent market sort.

STRAWBERRY PROPAGATION.

BY F. WOODING, BRANCHTOWN, PA.

At the meeting of the Germantown Horticultural Society on May 9th, I was very much interested in the various remarks made by the speakers present relating their experiences and methods of the propagation of and cultivation of strawberries. Those exhibiting strawberries there evidently needed no instructions, as I never saw finer berries before. But I don't remember hearing anything said about the pot system of propagation, which I think far the best and most reliable. About the first week in August is a good time to raise new plants. I get as many three-inch pots as I require and make holes down the strawberry bed with a trowel to set the pots in, which keeps them in position. The soil from the holes will do to put in the pots. The young plants are then layered into the pots and there remain for about two weeks. By that time they will have sufficiently rooted into the pots. The runners are then cut off from the parent plant and the plants removed to a shady place. Watering must be attended to at that time and until they are planted out in beds, which should have been previously prepared for them. By the first of September they will be well established and in a good condition for planting out; and if they are well watered before turning out of the pots and the ball of soil not disturbed they will start into growth in their new quarters without feeling any check at all. Under this system ninety-nine plants out of every hundred can be easily raised.

INSECTS INJURIOUS TO NURSERY STOCK AND BEST METHODS OF DESTROYING THEM.

BY CHARLES D. ZIMMERMAN, SUPERINTENDENT OF FRUIT, STATE FARM, LANCASTER, O.

It is of first importance to know the nature and habits of insects that trouble you, when to expect them, when and where their eggs are laid, and whether they are most readily destroyed in the egg, larva or perfect state, so that the preventives or remedies may be intelligently applied. In all cases one light application of a remedy in the early stages of insect life will be more effectual than many after they have toughened by age; and the astonishing rapidity with which many kinds of insects increase, if allowed to get established, shows the importance of constant vigilance as well as early action.

Different sections of our country are often troubled with insects peculiar to that section only; still some of the different remedies recommended may be found effectual. For those nurserymen who are unfortunate enough to be located where the Rocky Mountain locust (Caloptenus spretus) occasionally swoops down and devours an entire nursery for breakfast, I would recommend the reports of the United States Entomological Commission's very exhaustive treatise, that can be had for the asking.

Plant lice (Aphides) and root lice (Erisoma) are among the most troublesome lice to the nurseryman and florist. Their wonderful reproductive powers make them very formidable enemies; for one female of the green-fly in five generations will have six thousand millions of descendants—provided there is no small-pox or cholera among them. Those infesting the leaves and branches are easy to conquer compared to those attacking the roots; for the former tobacco smoke is the most effectual for indoor plants. Trees and outdoor plants may be syringed with tobacco water, whale oil soap suds, hot water; and a writer in the GARDENER'S MONTHLY recommends a mixture of crude carbolic acid and common soft-soap, two or three tablespoonfuls to a quart of soap, or as much acid as the soap will cut. For the latter we have no thorough practical remedy; like the grape Phylloxera and other root insects they seem quite beyond our reach. If on young stock, the ground may be scraped back so as to expose the roots and then apply hot water at about 200°; it will kill all within reach without injury to the trees. Any poison put in the water would be wasted, as the soil would filter it before penetrating to many roots.

Bud worms (Penthina oculana, H., and Loxotænia rosaceana, H.) The larvæ of these small moths destroy the leaf-buds of the apple and pear as they are about to expand, and as soon as the leaflets are large enough they roll them together to protect themselves, making it a difficult matter to reach them. Paris green in

water would reach many, but where they are not too numerous hand-picking would be the safest.

The larva of the May beetle (Phyllophaga fusca) or white grub, as it is popularly called, feeds on roots and has quite a fancy for strawberry roots, but is by no means confined to them, eating the roots of most trees where finer roots, such as grass or weeds are not at hand. A few days ago I had occasion to dig up an old stump of a peach tree, diameter about six inches, where I found seventy-five of these grubs eating the decaying bark and wood, which shows they can get a living on quite a variety of food.

The beetles lay their eggs in sod, in matted strawberry beds and at the collar of trees. The grubs live three years in the ground before they come out as beetles. One of the best preventives is to plant in such lands only as have had thorough cultivation for at least three years previous. The beetles can be shaken from trees during the day, when they are sluggish, on sheets and destroyed. They eat the foliage of trees. The cherry orchard on the State farm suffered most from them, though some sweet chestnut trees looked quite ragged.

For the imported oyster-shell bark louse (Aspidiotus conchiformis) apply pure raw linseed oil in June.

Pear and cherry leaf slug (Selandria cerasi, P.) and rose slug (S. rosæ, H.) are often troublesome in the nursery. The eggs are laid on the under side of the leaf in May and June by sluggish, black saw-flies. The larvæ feed exclusively on the upper side of the leaf during the night and on dark cloudy days, hiding on the under side from the bright sun. When full fed and after changing their skin four times (after the the last molt the cherry slug is not slimy) they descend to the ground entering two or three inches below the surface to undergo their transformation. One or two applications of air-slacked lime dusted on the leaves in the evening is a sure cure. Whale oil soap-suds, white hellebore and Paris green are also good remedies.

Peach tree borer (Ægeria exitosa, S.) will not trouble nursery stock much if the peach orchards in the vicinity are kept clean of borers. Nursery stock may be protected by thoroughly banking up the soil with the plow during July, August and September to prevent the parent moth from laying her eggs at the collar.

Red spider (Trombidium telarium, H.), an imported mite, very troublesome in the greenhouse, also often found in dry seasons on outdoor trees and plants, especially evergreens. It appears only when there is too much heat and too little moisture. Hence the remedy is apparent, plenty of water on the under-side of the leaf. A little soap or carbolic acid would aid in their destruction.

The mealy bug is a very troublesome pest in the greenhouse. Hot water, kerosene oil in soap-suds is sure death to the bugs, but also to the plants if the application is too strong.

GENERAL REMEDIES.

Paris green and London purple are the most effective where a strong poison can be applied. They are not soluble or only a small per cent., hence to use them with water it must be continually stirred. A tablespoonful to a barrel of water will be a strong poison for any insects.

Pyrethrum powder, when fresh, is death to insect life and harmless to plants and animals.

Nothing is more deadly to insects than oil, it obstructs their respiratory organs, which are situated on the sides of the abdomen.

To mix oils with water, first combine them with milk, then dilute to the desired degree with water. Hot water is one of the simplest and cheapest remedies, always effectual.

[This is one of the interesting papers read before the meeting of the Nurserymen's Association at Dayton last month.—Ed. G. M.]

FIVE OF THE NEW STRAWBERRIES.

BY A. A. BENSEL, NEWBURGH, N. Y.

The extra strawberry season of 1881 in the Hudson River Valley may now be said to be closed, and I note for the pages of the MONTHLY a few particulars in regard to new strawberries which are not yet generally known. First, and most assuredly foremost, stands—

The Bidwell, which ripens with the first of the large berries. It must be accounted number one for productiveness on strawberry soil, by which I mean heavy loam highly enriched. There are varieties that do well and make paying crops upon light soil, but for stability heavy loam is generally conceded to be best. It would seem as if the extreme of productiveness had been reached by the Bidwell. The fruit is large in the sense at present understood by growers; color, crimson; shape, regular, long, conical; leaves hardy, and plant a robust grower. If the

heavy berries of this fine new variety will bear carriage to a distant market, it will surely become a favorite. Pomologically the berry is "good," having a brisk fruit acid, and much refreshing juice.

Seneca Queen is quite different in shape from the preceding, being somewhat flattened or nearly round, but will require no greater number to fill the basket than of the Bidwell. To many tastes it may be superior to Bidwell. It is largely productive—will yield more baskets of fruit from the same ground than the Wilson and some others of the old favorites. The Queen and Bidwell will probably supersede half a dozen of the varieties now in cultivation, ripening at the same time. This fruit is dark crimson when fully ripe; is brisk acid, with none of the vinegariness of the Wilson.

The Primo, originated at Newburgh by Daniel Smith, is only a few years from seed and not yet disseminated, although planted in different soils for trial. This is near the size of Seth Boyden in its best estate; is bright scarlet in color; a firm berry; rather late in time of ripening; sub-acid, half melting and delicious; emits a delightful fragrance, and has many good points for the amateur. Leaves large and hardy, with foot stalks and fruit stems heavy and strong. The Primo may be planted to succeed the Charles Downing.

Oliver Goldsmith is so new that I can only speak of it as I saw it on the fruit farm of Mr. E. P. Roe, at Cornwall. The plant makes a fine show for vigor and hardiness. The fruit is long conical, somewhat resembling the Bidwell, but has also a glossy neck, and is lighter in color. It is an exceedingly fine fruit in every respect, and worthy of an extensive trial, even if not so wonderfully prolific as the Bidwell.

Triple Crown received its name from Mr. Hunt —the originator of this excellent variety—because of its usually stooling into three heads or crowns. The berry is a long oval, uniform in shape, and sound enough to bear carriage to a distant market. Triple Crown is as prolific as Seneca Queen, and more pleasing in appearance, being brighter in color and of better form. It will, I think, prove a most profitable variety for the general market. There is but little sharp acid in the fruit, which may be picked early.

These varieties are all staminate.

[We have supposed the proper orthography was Bidwill, but perhaps our correspondent's way of spelling it must be correct.—Ed. G. M.]

EDITORIAL NOTES.

THE KIEFFER PEAR.—Some remark has been made as to the "unqualified" praise we gave this fruit recently. But nothing was further from our intention than that our praise should be regarded as "unqualified." On the contrary, we have endeavored to say that there is no evidence that the pear is "blight-proof," as it is termed, because in the vicinity where the original tree grows and has borne for a number of years, there is very little, if any, fire-blight existing. That it will sometimes have the leaf-blight as well as any other pear, has been frankly stated by Mr. K. himself. We do not regard the fact that it has never had "fire-blight" on Mr. Kieffer's grounds as conclusive evidence that it will not blight anywhere else. It may or may not be universally free from this disease,—but whatsoever the fact may be, it has not yet been proved.

We may say that we have had on three different occasions fruit from the original tree, and on each of these occasions the fruit was delicious. We must speak of things as we find them. So far as these three opportunities are concerned, we must truly say we never saw a more beautiful or tasted a better variety. But before us is a letter from one quite as capable of judging what a good pear is as we are, and this letter says:—"I have fruited it three years, and it is not fit to eat either fresh or cooked." This sort of experience we find in almost all varieties of pear. We have had Flemish Beauty, Vicar of Winkfield, Des Nonnes, Rutter, Howell, Belle Lucrative, and many others, that were not fit to eat either fresh or cooked. These cases do not invalidate the fact, that sometimes, perhaps generally, all these are luscious fruits.

But still the facts are valuable as regards the Kieffer. It shows that it is as liable to contingencies as the ordinary kinds of pears; and those who plant it must expect to find that the millennial of fruit culture has not arrived with its introduction any more than with other things.

THE ALEXANDER PEACH.—The first peaches of the season in New York came on May 30th from Mr. P. J. Berckmans, of Augusta, Georgia. They were Alexander, and filled three crates of a third of a bushel each, two hundred peaches in all, and were sold for $32.

THE MANCHESTER STRAWBERRY.—A large party of experienced fruit-growers visited this variety

on its native grounds when it was in its prime. It is a chance seedling. It is represented as of a brilliant scarlet color, oblate conical, and "can be eaten without sugar."

Those who examined it very wisely took what might be deemed its nearest competitor as a standard of comparison, the Albany Seedling, with the following result:—1. In size it averages one and a half larger. 2. Of much better flavor. 3. It is far more attractive in appearance. 4. The plant is double the size and much more vigorous. 5. It carries the fruit higher from the ground. 6. The yield is one-half greater. 7. In firmness it fully equals the Wilson.

POCKLINGTON GRAPE.—Mr. Purdy, in the *Fruit Recorder*, speaks in high terms of this new variety.

APPLE YELLOW TRANSPARENT.—This is an importation from Russia, though what may have been its name in its own country we are not informed. The fruit is said to be of medium size, of a rich, transparent lemon yellow, with a faint flush on the sunny side. It is earlier than the Tetofsky.

APPLE QUEEN OF THE WORLD.—This popular Ohio apple is found to be but a synonym of the Ewalt.

STRAWBERRIES IN OHIO.—Mr. Crawford, in an essay before the Stark County (Ohio) Horticultural Society, says:—"Of the well-tried sorts that may be safely planted anywhere, I would name the Cumberland Triumph, Charles Downing, Captain Jack, Monarch of the West, Duchess and Wilson. Of the newer varieties, the Sharpless, Miner's Prolific, Henry Davis, Red Jacket, Longfellow and Hart's Minnesota will probably disappoint no one."

STRAWBERRY.—Finch's Prolific is believed in Ohio to be an improvement on Wilson's Albany.

LARGE STRAWBERRIES.—At the June meeting of the Massachusetts Horticultural Society, Sharpless Strawberries were exhibited weighing 1¼ ounces each. As an exhibition berry, however, it has little beauty, being twisted and deformed to an outrageous extent. Why does not some one get out the beautiful Jucunda, as once we loved to see. The time will probably come, when beauty of form shall be regarded as of as much importance as beauty in color,—and may that time soon be.

SCRAPS AND QUERIES.

TEMPERATURE OF A COLD GRAPERY.—W. H. W., Malden, Mass., says:—"Will you please tell me, either by mail or through the GARDENER'S MONTHLY, at about what temperature a cold grapery should be kept?"

[A cold grapery, as generally understood, has no fire. It is simply the foreign grape-vine, growing in the open ground, and covered by glass, so as to keep the atmosphere moister than the unaided American climate affords. No especial temperature is aimed at. The sash is lowered somewhat, or the upper ventilators left open, and the glass somewhat shaded if the sun is likely to run the temperature in summer much above 90°. The lower ventilators, if any are there, are not opened, as this causes the moisture to escape too rapidly, and thus defeats the very object of the glass house.—Ed. G. M.]

THE CURRANT WORM.—F. K. A., Hartford, Conn., says:—"Syringe the bush thoroughly with tobacco water, rather strong. One application is enough."

GROWTH OF A CHERRY TREE IN WESTERN NEVADA.—In our last year's volume we noted the receipt of some fine apples from Nevada. As showing that other fruits will also do well in this new State, we give the following interesting note from a lady residing in the Washoe Valley: "Measurement of a cherry tree in our orchard, set out in 1864. It has large, soft leaves, and red shiny bark; trunk two feet from ground, 3 feet 10 inches; three branches, 3 feet 9 inches from the ground; first, 2 feet 9 inches; second, 2 feet 6 inches; third, 1 foot 10 inches; diameter of lowest branches, 30 feet; it is about 25 feet high, perhaps more. It does not set the cherries very well, but every year it gains a little, and will likely bear a full crop when older. It is a beautiful tree if it never had a cherry on it. The cherry is yellow, with a red side next the sun, round and large. I do not know the name."

EARLINESS OF THE WATERLOO PEACH.—C. W. W., Wilson, N. C., says, under date of July 1st:—"I have just picked my first specimen of the famous Waterloo peach, raised from buds bought of Ellwanger & Barry, in the summer of 1879. It is the same size as the Amsden, but from ten to fifteen days later than that variety in my orchard. How is this? They claim that it is a week earlier, and larger than Amsden."

[The ripening on a few trees for one season is no test of comparative earliness. This was discovered a few years ago in raising early tomatoes. A variety flowers, say to-day, and fertilizes its flowers; another to-morrow, and these flowers fertilize. After fertilization there is no check, and when mature one may be a day earlier than the other. Under all ordinary circumstances we have two varieties, one ripening a day or two after the other.

But now a season comes when the early one has flowered and fertilized its young germ, which continues to grow, but the next few days are cold and dull—perhaps for a week or ten days—and the later one does not open, or the flowers are not fertilized for all that time. The ripening that year is ten or fifteen days later. This was once an enigma with early tomato growers, until the reasons were clearly worked out.

The moral of all this is, that though there is an absolute difference in earliness between varieties, the ratio is always liable to be broken in upon by unusual circumstances; and we must not expect the ratio to be uniformly the same.—Ed. G. M.]

LETTUCE, BLACK-SEEDED SIMPSON.—W. C., Belvidere, N. J., writes:—"I have sent you to-day, by express, a head of lettuce—Black-seeded Simpson. Will you kindly express your opinion in your valuable GARDENER'S MONTHLY; that is if you think it's worth it? I think it the most valuable I ever grew. It possesses the good quality of standing so long before running to seed. I set these lettuce out between cauliflowers and peas. The sight was very striking before any were cut."

[The one plant filled a large nail keg, and was very crisp and free from bitterness.—Ed. G. M.]

FORESTRY.

EDITORIAL NOTES.

THE EUCALYPTUS AS A FOREST TREE.—It is supposed that the urgency to plant forests of a tree that will not stand a degree of frost, could only come from American daily papers. It was supposed that at least in England, where gardening intelligence is such a power, things would be differently done. But we find by our English gardening exchanges that the "*Times* and similar journals" are doing the same thing there. We have often urged, in spite of erroneous things that occur here now and then, that we are not much behind the rest of the world.

TIMBER CULTURE.—A correspondent of a cotemporary complains that he bought a thousand forest trees of an Illinois nurseryman, and they have so many sprouts about the base that they will not make trees and are now a nuisance. Well, there are some people who could not fry a beefsteak the first time they tried. There is business in everything.

THE YELLOW PINE.—We have always some doubt, when we read of yellow pine, what the writers mean. So far as we can judge, it is likely to be Pinus palustris when the Southern coast line is referred to; Pinus Taeda when we get in the higher and cooler portions of the Southern States, and Pinus rigida when north of the Potomac.

OILING FLOORS.—The *Art Interchange* instructs its readers how to color a pine floor which is to be partially covered with rugs, a fashion which prevails to a great extent just now. Obtain from any house-painter's store turpentine and linseed oil—not boiled. Ask the clerk to put a little Japanese drier in the turpentine. Buy either burnt sienna or Vandyke brown, or both, according to the color of the rugs and the tint of the walls. These colors come put up in tin cans, smaller but otherwise similar to tomato fruit cans. After the floor has been washed thoroughly clean, and dry, begin by mixing in another recepticle the oil, turpentine and paint. The mixture should be so thin that it will flow with liquid readiness. Lay it on with a brush, stroking the brush the way of the grain of the wood. Protect your hands with old gloves, and go over the floor with a rag. In fact you will need two rags, one pretty well charged with paint, to rub in every crevice, and another

to rub off any superfluous paint. Do not stop in a straight line across the grain of the wood, but carry the brush irregularly down, taking a hint from nature's lines in the wood. By mixing the burnt sienna and Vandyke brown a rich color will be produced without using the paint thick. The mixture should be so thin that the grain of the wood will show through. If too much turpentine is used the paint will rub off. If too little, your room will need more days to dry. Use twice as much oil as turpentine. Do not economize the oil, and be as prodigal in rubbing as your strength will permit.

On the Uses of Hornbeam Wood.—Notwithstanding that the wood of the Hornbeam is remarkable for its close grain, even texture and consequent strength, it is seldom used for structural purposes. To a certain extent this is attributable to the tree not usually growing to a very large size, and also to the fact that when it does it is liable to become shaky. Evelyn says that it makes good firewood, and that it burns like a candle. In France and Switzerland it is preferred before other woods for charcoal, not only for forges and for cooking, but also for making gunpowder. At the great gunpowder factory at Berne, scarcely any other wood is used. Hornbeam has of late been much more largely used in this country than formerly, it having been found to be peculiarly adapted for making lasts used by bootmakers. Hearing some time since that this wood was being sent to this country in considerable quantities from France enquiry led to the discovery that it was being used almost exclusively for the above purpose, and that it was imported in sacks, each containing a number of small blocks, in shape of the rough outline of a last. We were at the time accorded the privilege of inspecting some steam works that had recently been erected at Ealing by Messrs. Peal for converting this wood into lasts. Very large quantities of the wood were consumed in this factory, a pair of lasts being turned out ready for finishing in a very few minutes. The advantage over other woods, and even over Beech, which has hitherto been considered the best wood for last-making, is that, after the withdrawal of nails, the holes so made close up, which is not the case with most other woods.—*Gardener's Chronicle.*

Natural History and Science.

COMMUNICATIONS.

DARNEL.

BY A. VEITCH, NEW HAVEN, CONN.

There seems to be a difference of opinion as as to whether the term Darnel is synonymous with rye grass and applied to all the species of Lolium, or whether it should be confined to L. temulentum. Both popular names are applied to all the species by some writers, whilst by others to temulentum only. Hooker uses both indiscriminately, and Gray, Flint, Wood and Chapman follow suit. Mr. P. Henderson in his "Hand-book of Plants," in some unaccountable way says that Darnel is a common name for the Lolium, a genus of noxious grasses introduced from Europe. This cannot be said of L. perenne and Italicum as Mr. H. very well knows, and it would have been more in accordance with popular belief had he said that it is a common name for L. temulentum, a noxious species introduced from Europe. Loudon and Paxton make use of the word in this restricted sense, and in Chambers' Encyclopædia rye grass and Darnel are treated of under separate heads which is eminently proper. The term is supposed to be derived from the old Saxon word *derian*, to injure, and in one old dictionary it is defined as "The Weed Cockle," which is explicable only on the supposition that from time immemorial it has been regarded with disfavor and classed with the corn cockle (Agrostemma Githago), which, when springing up in grain fields entails both trouble and expense.

This difference of opinion and statement seem to spring from the too free use of such popular names as have been conferred upon particular plants for obvious or imaginary reasons. And as these reasons become obscured, or are but dimly understood, they are apt to be applied to plants having no connection with those first understood by them.

The popular belief that Darnel is possessed of noxious and poisonous qualities has been much shaken by recent researches on the continent of Europe, as "the effects which have been ascribed to it are now regarded as proceeding from grain injuriously affected in some way by bad weather."

THE BETEL TREE.

BY DR. E. A. STURGE, PETCHABURI, SIAM.

Of all the graceful palms of the tropics, the Betel or Areca Palm of Linnæus probably holds the first place, both because of its beauty and the value of its fruit. This tree attains its greatest perfection upon the plains of Siam. Frequently it raises its slender trunk crowned by a tuft of plume-like leaves, ninety feet into the air. The average diameter of the Betel Palm, about two feet from the ground is about six inches, and it diminishes but little in size till the extreme top is reached. The wood is of little value, the grain being too open for use, save for rough purposes. In the place of a heart it has a fibrous pith occupying about half of its diameter. The bark is of a light ash color with parallel circles about six inches apart, marking the places from which leaves formerly sprung. Its trunk is remarkably straight and upright, without a knot or limb to its very summit, at which point it has only a tuft of feathery leaves six or eight in number. The leaves are pinnate, each being five feet or more in length, curving gracefully upward and outward.

It is probably owing to the smallness of their tops that they stand so remarkably upright, while their neighbors, the cocoanut palms generally lean in all directions. These feel much more than their slender sisters every blast of wind that touches them. The roots of both are about equally strong, being made up of small tough ramifications from one common centre. The Betel trees in Siam are generally planted in orchards. They are placed eight or ten feet apart in rows, with a deep trench between each row. The spaces between the trees are usually profitably occupied by the ceri plant, which is a beautiful vine, twining upon poles ten or twelve feet high, standing two or three feet apart. It belongs to the pepper family, and is raised only on account of its spicy cordate leaves which are always chewed with the Betel nut. In order that this plant may flourish on the same bed with the Betel trees it is supplied with large quantities of putrified fish, placed close to the roots. The stench thus produced is horrible to all unaccustomed to it, but is generally regarded as both healthful and agreeable by the natives living in or about the orchard.

The Betel trees begin to bear about the third or fourth year of their age at which time they are about eighteen feet high. They continue producing fruit for about forty years, when they begin to decay at their roots. A Betel nut with its coverings much resembles a small orange. They grow in large clusters a hundred and fifty to three hundred nuts in each. Each cluster is attached by its stem to the tree a little below the leaves and hangs gracefully under their shade. When ripe the fruit is of reddish yellow color. The outer part is simply a tough hull about a quarter of an inch in thickness. The nut itself is about the size and shape of a large nutmeg when stripped of its envelopes. It is very prettily marked with white and flesh-colored stripes. The natives prefer the nut in its fresh state before it is fully ripe. The nut with its hull is divided into quarters with a peculiar knife used only for this purpose. It is the women's place to prepare the Betel nut. It is always kept ready and offered to visitors as soon as the usual greetings have been exchanged. The Siamese all chew Betel. A section of the nut is placed in the mouth; a ceri leaf is then spread with fresh lime paste, rolled up with the lime butter inside and placed in the mouth to join the Betel already in the mill. A pinch of tobacco is then placed between the upper front teeth and the lip. This combination colors the saliva blood-red, the lips a deep vermilion, and the teeth jet black. But all this is considered beautiful. They say persons with white teeth look like ghosts. If for any reason a Siamese cannot chew Betel he blackens his teeth with a kind of varnish, produced by charring a cocoanut shell in a small earthen pot covered with a plate of iron. A fire is placed under the pot and the products of combustion are condensed on the cold iron. They are at first dark brown but soon become jet black. Both the Betel and

the lime are astringents. They cause the gums to contract, and make the teeth look very long; for the same reason they often become loose and drop out, but they never decay.

Dr. Gowen, who has resided in Bangkok many years, said he had never known a Siamese who used Betel to have decayed teeth, and he never knew one who did not use it who did not suffer from this disease. A Siamese would rather do without all other food for a day than abstain from his Betel. Each Betel tree on an average bears annually six hundred nuts. A native on an average uses eight nuts per day. The retail value of the Betel nuts is fifty for a fuang or eight cents.

ANNUAL ÆRIAL ROOTS.

BY R. C. POPPEY, POUGHKEEPSIE, N. Y.

Let us take a glance at what is termed annual ærial rootlets, and investigate the theory, and see if they are only annual and ærial. Not a few may consider it a piece of vanity in hesitating to believe that upon which acknowledged authorities have agreed. But when we consider how many hypotheses have been overthrown, that stood good for many years, we are justified in picking to pieces that which has been pronounced complete, as regards the office and turn of annual rootlets. I am reluctant to accept any cause or effect in nature as being spontaneous, and not coming under the great law that governs all. I refer to the explanation given in the MONTHLY that rootlets, by way of chance, or by their own will, became true feeding roots by meeting here and there accidentally privileges which were denied others, or through reluctance not taken advantage of. Before going into the philosophy of this subject, I wish to call attention to a few points that may help to avoid misunderstandings. It is not a good idea to subject an example for experiment to unnatural conditions or habits, and glean from it results to verify a theory, as it is too apt to do the reverse, and only damages the cause. As regards plants, when wanting to experiment on them, their natural habit and position should first be ascertained, and know that every family of plants has a separate office to fill in nature, and that nature has designed it for one purpose only. That man turns it to different purposes, has nothing to do with what nature created it for.

In my opinion all vines that twine or cling are among the most dangerous enemies to trees, and designed by nature to destroy them by robbing them of light and air. Through the twining nature of many the ascend of sap is greatly obstructed, which in time will cause the tree to decline, and if not yet a tree prevent it from ever becoming one. This is the office and nature of the Wistaria, and not to creep upon the ground. Such vines as cling to objects by means of rootlets, cannot be said to be to any degree dependent on them for existence, but undoubtedly assist those in the earth to a greater extent than is known. One importance more, and that as much as any may be attributed to them, which is, that the rapidity of growth is due to the firm hold and support that they lend to the vine. To illustrate clearly, those who may not be aware of the importance of a firm support for vines, if rapid growth is desired, may take for an example two Smilax vines, each to a cord, one drawn tightly and the other allowed to be slack, and the importance of tightly drawn cords for vines will manifest itself. That these rootlets die every season does not prove that they are annuals and only ærial, as they decidedly gainsay this when put into favorable conditions, where they will send them into the earth and become roots for good. That they die every season proves two facts; first, that they are premature and wither in consequence of not finding accommodations, but still obey the edict of nature by holding the vine firmly to the object they chose to cling to; secondly, the sequel of these rootlets dying is to furnish accommodations for roots in time. When attached to a wall or rock this accumulation of decomposed vegetable matter incited through the action of frost will in time reduce them to earth, their mission there being analogous to *Lichens*; but when to a tree, the vine with its rootlets becomes a dangerous enemy, not alone in excluding the stem from the action of light and air, through the accumulation of dead rootlets and leaves, but also by its encouraging all kinds of insects to harbor there, and with their assistance kill the tree by inches. In place of the undeveloped and crippled roots, that till then appeared to be ærial and annual, a new set of roots, as the tree gradually decays, will grow out and be roots in earnest, and send them into the rotten woods.

[There is so much of bold free thought in Mr. Poppey's papers, that they are no doubt read by most of our intelligent readers with great interest. It seems, however, but right to say that many of the positions assumed are untenable. For instance that a vine injures a tree by "excluding

from the stem the action of light and air." If it injure, it cannot in that way. It is a well-known fact that a tree trunk may be encased with earth up to its branches, not only with no injury, but with actual benefit. This was all there was in the celebrated Bolmar method of treating fruit trees which excited so much interest about Cincinnati a quarter of a century ago.—Ed. G. M.]

EDITORIAL NOTES.

PETRIFIED FORESTS.—In 1871, when the writer of this spent some weeks in the Rocky Mountains, the petrified remains of a forest of red-wood, oak, and other trees, petrified, thrown up from a lower level by volcanic action, and deeply imbedded in tufa, still with many portions of trunks some feet above the surface, were still to be found midway between Golden Pass and the Ute Pass, near Pike's Peak. It is now said to have disappeared, at least so far as anything is to be seen above the surface. It is said that another of these wonderful pre-historic series of remains in Sonoma, California, is fast disappearing before the zeal of relic hunters. It is to be regretted that these wonderful remains of the mysterious past could not be preserved,—and it may not yet be too late for the State governments in which they are to be found to do something towards that end. The one in Colorado must have been buried very deep by the volcanic dust, as at the time the writer refers to one of the trunks was hollow, and a string and a stone at the end was let down and found to go many feet beneath the surface. No doubt if this old forest could be dug out to the original surface of the ground, many interesting relics of plants and animals might be brought to light. Some exposed strata near, thrown up at the time the trees were destroyed, exhibited numerous skeletons of fish, showing that life at least of a high order of creation existed when these red-wood trees were growing there. There are now no red-wood trees living in Colorado, nor any oaks beyond one shrubby species, Quercus undulata.

INSECTS IN CLEMATIS.—The roots of many clematises are knotted, like as appear the roots of the grape vine when attacked by Phylloxera. The plants so attacked dwindle away in a year or two Professor Riley decides it not to be the work of a Phylloxera, but of another insect, an Anguillula. Besides this, some species are attacked by a borer allied to that which attacks the peach tree; that is an Aegeria.

There is another, fungus disease apparently, which is a fearful scourge on Clematis Jackmani, and which keeps it always scarce.

THE YUCCA MOTH.—Much interest is still felt by keen observers of nature in the Yucca moth. It seems to be a certainty that except in a very few instances the common Yucca filamentosa bears no seed except when the Pronuba yuccasella makes itself at home in the flowers. This we have said repeatedly to our readers. The insect deposits its eggs in the fruit, and the young fall out in the autumn, and remain for the winter in the ground. A couple of years ago Prof. Riley discovered another species of Yucca moth, which he calls Prodoxus decipiens. These deposit in the yucca stems, in which they remain all winter. The insects are so much alike as to appear the same to the unaided eye, and they associate together. In the early flowering species Yucca angustifolia, on the grounds of the Editor, seventeen insects caught in one flower, proved to be thirteen Pronuba and four Prodoxus. It is believed these insects were in the past ages of one type, and that it is a striking instance of distinct genera being derived at no very remote period from one stock.

MALFORMATION IN CLOVER FLOWERS.—There has been trouble this year in many Pennsylvania clover fields. The flowers have no tubes, and the unopened mouths of the flowers do not project beyond the calyx. In some fields a large proportion are of this character.

GORDONIA PUBESCENS.—We believe this plant has never been found since its original discovery by William Bartram. All the plants known are only those under culture. We found on a recent visit to the Bartram Gardens that the original tree had disappeared. In his travels Bartram gives the following account of the location:—"I set off early in the morning for the Indian trading-house, on the river St. Mary, and took the road up the north-east side of the Alatahama to Fort Barrington. I passed through a well inhabited district, mostly rice plantations, on the waters of Cathead Creek, a branch of the Alatahama. On drawing near the fort, I was delighted at the appearance of two new beautiful shrubs in all their blooming graces. One of them ap-

peared to be a species of Gordonia, but the flowers are larger and more fragrant than those of Gordonia lasianthus."

PEDICULARIS FURBUSHÆ.—We once heard a distinguished botanist say, he would feel more likelihood of finding new plants in an old State like Maine, than in a new one like Colorado. And now a lady, Miss Kate Furbush, of Brunswick, has found a new Pedicularis in the old Pine Tree State, which Mr. Sereno Watson has named as above in her honor.

DISEASE IN THE HOUSE-FLY.—Dr. Eckfeldt writes that the disease in the house-fly, noted in our July number, was not merely from Botrytis bassiana; for other undetermined species of the same genus freely occurred in all the specimens he examined.

HISTORY OF THE BEAN.—The common bean, Faba vulgaris, is vaguely believed, like the pea, to be a native of Egypt, perhaps because received from that country by the ancient Greeks, in whose authors there is a mention of it. Some have thought it indigenous to the neighborhood of the Caspian Sea; but the examples of the plant which occur in that region, though apparently wild, are quite as likely to be descendants of former cultivation; just as in England we find waifs and strays of garden plants in the country lanes. Representations of it occur among the drawings in the Egyptian tombs, showing that if not indigenous, it must have been imported at a very early period. It is alluded to in the *Iliad*, where the beating out of the seeds from the pods supplies the poet with a simile (xiii. 589). Theocritus seems to imply that the seed was sometimes parched, for eating, over the fire, saying in his sketch of a certain little feast, that a κύαμος shall be roasted in the flame (vii. 66). In Theophrastus the bean is called κύαμος Ἑλληνικός, or the Grecian, in order to preserve the distinction, which had now become important, between the leguminous fruit and the yet more famous produce of the sacred water lily of the Nile, the Nelumbo of modern botany, which was called κύαμος Αἰγύπτιος. The scriptural notices of the bean, both under its Hebrew name of *pól*, are two in number. First, we have in the above-quoted verse from 2 Sam. xvii.; secondly, in Ezekiel iv. 9, "Take thou also unto thee wheat and barley, and beans, and lentils, and millet . . . and make the bread thereof." The present quotation makes a third in which the lentil is mentioned. There can be no doubt that the common Broad or Windsor Bean is the species intended,—the good old-fashioned vegetable which, though somewhat coarse and untidy in habit, is able to give odor so soft and sweet to the passing zephyr, and which possesses also a feature of the utmost rarity in flowers—a patch of color on the lateral petals so deeply purple as to seem black. With the exception of two or three orchids, first and foremost the Cœlogyne pandurata, black occurs scarcely anywhere else among flowers. — *Leo Grindon in Gardener's Chronicle.*

THE DUNN OAK.—A new oak is described by Dr. A. Kellogg, as follows: "The Dunn oak (Quercus Dunii).—From Lower California, presented by Mr. G. W. Dunn. This is a small tree, or commonly a clustered shrub, rarely exceeding ten feet high, and three to four inches in diameter. The foliage bears some resemblance to our evergreen field oak (Q. agrifolia), but the male catkins are in long, dense-flowered tassels, similar to Q. densiflora, the chestnut or tan-bark oak of the coast (mainly); cups like the Italian brigand hat, and almost destitute of any distinct scales; color, foxy-yellowish. More specimens are desirable for comparison; meanwhile it is thought best to make it known under the provisional name above. Leaves, perennial, subcordate-ovate, corneously spinous-dentate, teeth often rather remote and somewhat repand, abruptly acute, rigidly recurved, laminal wings more or less elevated and waved—tomentum very close, dense, dull whitish, chiefly beneath —one-half to one and one-half inches long, and about one-half as broad, petioles short one-sixth to one-eighth in length; fruit solitary; sessile or short peduncled, on wood of the previous year—male aments in long fasicles, dense white or sub-creamy flowers—(like those of a *castancea*; wanting in the specimens); cup, obconically bell-shaped, the very obscure scales broad and thin, continuously united (apparently) into a succession of rings, one above the other, with lessening intervals to the sub-entire thin involuted margin; slightly fulvous externally, scar small, one-half to two and one-half lines broad; gland, oblong-ovate, acute."—*Pacific Rural Press.*

PLANT COLORS—are granules enclosed in cells which are about 1-500th inch in diameter. Infinite multiplicity of colors is possible in the ever-varying groupings of the color cells.—*The Garden.*

SCRAPS AND QUERIES.

NAMES AND SYNONYMS OF PLANTS.—Charles Crucknell says: "Is not the nomenclature of the palms somewhat confused? Your correspondent says Pritchardia Gaudichaudii is quite a common palm under the name of P. pacifica. Why is it grown and sold under this name? and what name is the tree Pritchardia pacifica grown under, or is the last named palm a myth? Here is one of the last named received from a first-class grower, and it looks like a rank growing Latania borbonica; it certainly bears no resemblance to the Pritchardia Gaudichaudii grown in the Missouri Botanical Gardens. In the same collection is Jubæa spectabilis received from three different sources, one is the common Phœnix, another is a Chamærops, the third may be true or it may not. Carludovica palmata, the Panama hat palm received from two growers resemble each other about as much as common dinner plates do porcelain.

"Latania glaucophylla received from Europe and Latania rubra the label marked 'true,' received from an American florist are alike as two peas. But it is consoling after paying seven dollars for a very small plant of the latter to be told that it wont be like the other when it grows up. In another collection I found Areca alba being grown for Latania rubra. Brahea filamentosa, the California fan palm is equally well known as Pritchardia filifera, but I find on the back of the label Washingtonia filifera written. Inquiry discovers the fact that Dr. Engleman wrote it. Some years ago great effort was made to fasten this name on the Sequoia. Surely more light is needed."

[When a plant is brought for the first time to scientific attention, it may be overlooked that it has been already named and described, so it is given a new name. When it is discovered that it has been already named, under botanical laws that the prior name must prevail, the last name is dropped, and it then becomes a synonym. There are other reasons why plants often get several names—mostly mistaken reasons, and then all are dropped, but the original name is discovered. Pritchardia Pacifica would be grown and sold under that name only because the sellers do not know its true name is P. Gaudichaudii; or else, knowing it, do not care to change the improper for the proper one.

Palms are very difficult to distinguish when young. This is unquestionable. There seems to be no way to secure the risk against the loss of the seven dollars, than to take a guarantee that the plant is the species it is sold for; or else to take the risk on the reputation of the firm selling it, as is generally done.

The case of Pritchardia filifera is simply another illustration of mistaken identity. It was believed to be a Brahea. When the chance to study the plant better came, it was found not to be a Brahea, but rather to favor Pritchardia; when still better opportunities occurred, it was found not to be a Pritchardia or to belong to any existing genera. A new one had to be made for it, and Wendland, the botanist, who examined it, named it Washingtonia.

It is just as if a little fellow should be found under the name of John Smith, but on a fuller examination should be found to be Charlie Ross. Many through his life would still call him John Smith, but it would be wrong. He would have to go back to the original name of Charlie Ross, as soon as the error was discovered.—Ed. G. M.]

HYBRIDIZING.—H. M. N., Chattanooga, Tenn., writes:—"Is there any such plant as a double fragrant pansy? If there is, where can it be procured? And how are special kinds of pansies most rapidly increased? Also, can you tell me of some good work on hybridizing?"

[There was once a double pansy; we have not seen it for a dozen years or so. Pansies can be propagated by not letting them go to seed, and dividing the roots. There is no work on hybridizing. It is so simple it can all be told in a few words and does not need a separate volume. We take two species closely allied, and cut out the anthers of the female plant before the pollen dust appears. Then we apply to the stigma the pollen dust of the kind we desire to use as the male parent. Some delay a day or so until, as they say, the pistil is ready. But pollen will keep for years fresh and good, and it may as well be lying on the pistil as anywhere else till the stigmatic surface is ready for it.—Ed. G. M.]

KALMIA LATIFOLIA, POISONOUS.—A correspondent says on looking over something from the pen of the editor many years ago, he notes the opinion that the prevalent idea that the leaves of the Kalmia are poisonous was doubted, and he inquires whether we are yet of the same opinion. He firmly believes it is. All we can say is, that we know of no well authenticated case that it is, but of course should be glad to

have anything made known that is conclusive on the subject.

PLANT VARIATIONS.—Our correspondent, E. P. P., of Clinton, is very fortunate in his successes in getting variegations and queer teratalogical specimens. In a recent letter he says:

"Once more my two Rostiezer pear trees are covered with pears about half an inch in diameter, and every one tipped with a fine blossom—the petals a deeper red than the color of the early bloom. But I am again caught, not having observed whether it be the spring petals carried on with the growing fruit, or a second development of petals. It is a curious freak. You remember that two years ago I wrote you of the same peculiarity in the same two trees.

I have been remarkably fortunate in securing variegated plants and trees. One of my quinces sported out from the root several creamy white shoots which have stood three winters, but blister a little in hottest suns.

"I have a superb variegated seedling phlox (perennial). Also a white-leaved elm; I am afraid too white. Also an apple with leaves creamy white and a green spot in the center of each. The Quince will be a remarkable lawn shrub if it can be kept from blistering too much. I secured last year a highly fragrant Drummond phlox, but could get no seed, which I deeply regret.

"Fruit trees this spring have had an extraordinary bloom. I never saw the like before."

"I have also a superbly variegated silver poplar, secured a year ago. It promises to be very fine."

LITERATURE, TRAVELS AND PERSONAL NOTES.

NOTES AND QUERIES—No. 27.

BY JACQUES.

The Telegraph Plant is the Desmodium gyrans, whose leaves move "like pump-handles." It is noticed by Darwin thus: "No one supposes that the rapid movements of the lateral leaflets are of any use to the plant, and why they should behave in this manner is quite unknown." The two lateral leaflets may be observed on a warm day to move upwards and downwards, first the one and then the other, now resting a moment, then starting again with a jerk. It is truly a vegetable wonder, easily propagated and grows to a height of two feet.—*The Garden.*

Quinine Bark. A popular account of the introduction of Cinchona cultivation by C. R. Markham has just been issued by John Murray, London. It is an important contribution to knowledge, and deserves careful attention in the United States. Many a soldier has owed his life to quinine in America as well as India; it is as important as his blanket or tent-pole. The plan was hit upon of cutting the bark in ribbons from the standing tree, leaving intervals untouched, and covering the stripped portions with moss so as to exclude light and air; each youngish tree yields three pounds of bark. It is being raised for profit in Mexico, and a million and half plants are flourishing in Java. The crop raised in the Nielgherries alone was last year 114,000 pounds, and the profits $150,000. The planting should be begun in the United States at once—probably parts of California would suit it. A fortune awaits the successful.

The Horticultural Hall at Fairmount Park is ably described in a daily.

When the boy reader was afflicting an old purblind lady by reading a story, he pronounced files instead of flies as the delight of the insect eating plants, and she thought it would come to that, they were so hungry. The boy is a very indistinct reader. Now that old Probabilities is dead the old lady thinks there will be a series of earthquakes.

The Camphor Tree has been planted near Los Angeles, California, with every prospect of success. Why not also the cork oak, which is proved by a tree or two to be perfectly adapted to the climate, there being a good sized one in the town of Santa Barbara. Is it too slow for American enterprise?

A Big Mushroom weighing sometimes twenty-five pounds is found in Italy, probably the same

as described by Theophrastus. The authority is *Blackwood's Magazine*. The article is said to be delicious.

Too True not to be Mentioned.—"Sam, you are not honest. Why do you put all the good peaches on the top of the measure, and the little ones below?" "Same reason, sah, dat makes de front of your house marble and back gate chiefly slop barrels, sah." We may learn from the colored man who flattered the druggist for his honesty in advertising "taste-less medicines."

There is a garden in Oil City which had early in the season lettuce plants higher than the top of the house. It is fair to the house, however, to state that the garden is on a level with its chimney top.—*Derrick.*

Cucumbers are only thirty-five cents each. *Yonkers Gazette.* That's cheap enough, but its the funeral that costs the money.—*Boston Times.*

Won't wait! California fruit is at a discount. A friend writes us from San Francisco, June 21st. "I saw to-day oranges quoted at 50 cents to $1.00 per box, the latter for 'extra fruit.' So I went through the fruit dealing district of the town and found it true; one man actually offered them at 40 cents per box, containing from 115 to 180 oranges in a box. Thus is dissipated one of the golden dreams of the fondly anticipating orange growers. I found peaches at 50 cents per basket, apricots $1.00 per basket, magnificent strawberries at 10 cents per quart, and even grapes in the market. Almost everything is sold by the pound. Grapes succeed."

The first part of "*The Vegetation of the Rocky Mountains*" by Dr. Gray, has appeared in the "Bulletin of the United States Geological and Geographical Survey," Washington, 1881. The second part by Sir J. D. Hooker will follow, the whole forming the most important botanical work on these regions so new to science. With the exception of three or four conifers, none of the trees of the Rocky Mountains are of first-rate economic importance.—*Nation.*

The Cologne Gazette estimates the production of beet-root sugar this year in Germany at 530,000 tons. Last year Germany, with 409,000 tons, was very little behind France, with 460,000 tons. The *Gazette* recommends a reduction of duty, as in England and France, to stimulate consumption.

EDITORIAL NOTES.

EDITORIAL LETTER.—PHILADELPHIA TO WILLIAMSPORT.—In the decoration of our gardens, we may often find abundant material close at hand. When in Europe, a few years ago, I found the Heracleum lanatum, one of the most conspicuous ornaments in Battersea Park. The name Heracleum is derived from Hercules. He was a giant among men, and this plant is a giant among herbaceous plants. It is near the parsnip in its natural connections, but the head of flowers is white like the carrot, but as wide across under favorable conditions as an ordinary sized parasol. It is no unusual circumstance to find plants with stems seven or eight feet high. In Battersea Park they skirted the edge of the lake on the opposite side from whence the observer stood, and the effect in the distance was grand. In a recent ride up the Schuylkill river, from Philadelphia to Williamsport, I was particularly struck with the charming scenery, in which this grand plant was a prominent feature. It surely deserves garden culture. In proper places nothing could produce so grand an effect. Whether it was that I took this trip at a particularly favorable time or not I cannot say, but the beauty of the scenery over this line of road never before impressed me so strongly as now. It is common to say that if we want to see flowers that are flowers, we must go among the Pentstemons of Colorado. But here on the railroad banks, and in half-shaded woods everywhere, was the grand parent of all the Pentstemons, the first one found and described, Pentstemon pubescens, in a role of beauty it seemed never to have attempted before. It seems to me that when we talk of natural selection, and of one plant getting the better of another in the great struggle for life, we should not forget the influence of an occasional good season. There may be years when the plant does not seed well, or if seeding well the seeds do not grow, or if the seeds grow freely the plants have no great encouragement; but when the good time comes that all these conditions are favorable, the particular plant it favors runs riot in the luxury of the time. Pentstemon pubescens had its jubilee this year, for perhaps a decade or more it may barely be able to hold its own, or perhaps be almost crowded out, and other kinds of plants will have their good time in turn. Another pretty plant which I never saw so abundant as this year was the pretty blue-shaded fern Pellea atropurpurea, one of the

prettiest of all the cliff-brakes. Wherever there was a partially shaded mortared wall along the line, it was doing its best to freely ornament it.

On one railroad wall a remarkably beautiful effect was produced by one of the European bind weeds, Calystegia sepium, which by some means had found for itself a home among the crevices of the huge square blocks of stone. The branches hung down like drapery for many feet, and was profusely dotted with its rosy-white wine-glass formed flowers. It is a dangerous plaything, however, for its white wiry roots are almost indestructible, while at the same time they are the most infinitely divisible of all the living particles of matter.

The Rhododendron maximum, which begins to be abundant at Port Clinton, was not yet in flower, but its twin sister, the beautiful Kalmia, was in partial bloom in many places. As we ascended to higher elevations the pretty white-berried dogwood, Cornus paniculata, was found in full flower. At this season it is quite the equal of the famed Laurustinus of British gardens. Oh, if it were like it, an evergreen! Of coniferous evergreens the white pine is most abundant, but, strange to say, is seldom the sole occupant of the forest, but shares its bed and board with oaks and maples in about equal quantities. This mixture of various shades of green is very interesting at this season of the year, but is particularly so in the autumn when the deciduous trees take on their autumn tints, while the white pine keeps its blue green all the year through. The most prevalent species of oak is the scarlet and the chestnut. I have never before found the former so abundant. The Schuylkill region might almost be called the home of the scarlet oak. Many of these woods have had their timber cut away, but are all growing up to forest vegetation. It is a great struggle, however, for the best kinds to succeed. There is, of course, a continual tendency of the soil at the top of a steep hill to roll to the bottom with every melting snow or shower of rain. The soil will always be thinner and poorer on the top for a second crop than for the first; while the immense mass of crowded material which dies in the struggle for life is the most glorious food for the forest fire. I am more than ever convinced that forestry must be taken out of the hands of nature and placed in the intelligent hands of man beforelong. New plantations must be made and tended with all the skill that art can bring. It is little use trying to save the old forests. With the immense amount of rotten brush and undergrowth under them, we cannot save them from the forest fire. Let us plant out thousands of acres of new woods, with no underbrush—fire-proof forests—then let the old woods go, the sooner perhaps the better.

But I started to speak of beauty. It is perhaps unfortunate that the road is known only by its baby name of "Reading." It is a man now, and stretches out its arms in earnest work over hundreds of miles of lines. Here it winds up along the whole length of the beautiful Schuylkill, and, with me, to-day, crosses the Beaver, and lands me at Williamsport beyond the Susquehanna. Now the waters are as smooth as glass—immense lakes, caused by some dam thrown across the river, and which have turned the wild waste of waters into industrial pursuits; now it is again the wild child of nature, rushing madly over the rugged rocks into the peaceful little lake below; now it is as narrow as a race, cutting its way through some hills, whose walls of many hundreds of feet high seem to give but grudgingly the right of way to the imperious water course; and now, again, it is wide and has given the red birch a chance to fight for the land, and often inch by inch to contest with the waters, holding the gathered soil for a season till sedges and sub-aquatic grasses come in turn to secure the victory the red birches gained for them. Few things are more attractive than these islands in the midst of the waters, gained by the industry of these persevering water soldiers, the red birch trees. I think none of the altitudes on this line are over 2,000 feet. The highest point in the pass through which the railroad passes is but 1,500 feet. But every traveler knows how deceptive heights are. Often we may as well be near a level with the sea, so blocked are we by hills on every side. I once went on Round Top to see from there the whole battle-field of Gettysburg, but the pines and cedars and oaks shut in the view from every side, and I had to climb a large walnut tree and look out from among its upper branches before I could see that for which I had toiled so high. But the Schuylkill river line is a succession of broken hills, around which the road continually winds, and gives us innumerable glimpses of the country for miles below and beyond. There is one particularly beautiful scene beyond Tamaqua. We have all heard of the grand horse-shoe bend of the Pennsylvania Railroad as it crosses the Alleghanies. The bend on this road

here is just as fine a piece of engineering, while the varied beauty connected with the surrounding scenery has charms that I have never experienced in any similar scene. As a rule, the traveler likes the fast lines. If he has any love for the beautiful in nature, he will love to linger rather than hasten over his journey here.

Williamsport is the head centre of the lumber trade. One mill which I had the pleasure of examining is owned chiefly by W. E. Dodge, the well-known wealthy and generous merchant of New York. This mill turns out about 196,000 square feet of boards per day, besides laths and other economic workings from the lumber waste. Two hundred and four men were at work at this time, and is about the number employed usually in the mill. White pine is chiefly cut up. They feel secure in having all they need of this for the next ten years, and say there are "exhaustless" supplies of hemlock when these are done. I suppose they know. At least I was surprised to find how little of the public anxiety about the future timber supply exhibited by the public generally, was shared by these people who would have countless thousands of dollars of capital destroyed if the supply of logs should give out.

The great beauty of the town of Williamsport, and the tasteful culture exhibited in its suburban houses and gardens, pleased me. I remarked last year of Cleveland that there was a singular lack of variety in the ornamental vines used in gardening. Here there was a profusion of kinds, but after all few more beautiful than our own native Virginia Creeper. In the former home of the celebrated Peter Herdic, who did so much to make Williamsport famous, the masses of foliage seemed to grow down from the top in pendents of inverted cones, like huge icicles on Niagara, or immense stalactites in some grand old cave. I have never noticed such effects from the use of this plant before, beautiful as they so often are. Another garden had an avenue of sugar maples along the winding carriage road which led to the front door. Just as I saw them four years ago in the Palace Garden of Luxemburg, planted by the fair hands of the Empress Josephine now long ago, here also the Virginia Creeper had been taken up the trunks of the tree, and then brought down to near the ground as a festoon, and then led up to the tree adjoining. The beautiful curves of green formed by these living festoons of foliage are so pleasing to the cultivated eye, that it is a wonder the device has not been more frequently imitated. This is the first instance I have seen outside of the famous Paris Garden.

Few people who see charming city suburbs stop to think how much is due to the enterprise of intelligent florists and nurserymen. They not only ply for custom, but they are the great educators of public taste. There may be more florists about Williamsport than we know of, but this we are sure of, that very much of the credit of the beauty we saw is due to Thomas Evenden, the pioneer, and Henry Chaapel, a younger venturer on the fields of floriculture.

Every line of travel has its especial advantages. The writer seldom passes over any but he finds much to learn and enjoy; but in the line of pure and simple beauty, seldom has he enjoyed so luxurious a feast as this short trip over the Reading, from Williamsport to Philadelphia.

OUR CORRESPONDENTS.—We hear frequent commendations of the GARDENER'S MONTHLY, but we always feel that as much is due to the zeal and generous kindness of our correspondents as to any superior editorial management. As showing how widespread is the interest in our magazine all over the world, we may point to the papers we often give from intelligent people in England, France, Germany, Australia; and even Japan and China have themselves heard through our pages. To-day the far away Asiatic kingdom of Siam is represented in our columns. As all these communications are free-will offerings of kind friends, they are very gratifying both to editor and publisher.

FINE WRITING.—Many of our correspondents send us excellent common sense papers, but regret that they cannot write in a style they think desirable for the public eye. But the language of the school-room is not always the language of sensible people, and there is no good reason why language which is written should be different from that which is spoken. Herewith we give an extract from Comstock's Elocution, a popular school-book. If one were to talk to us like this in our parlors we should think him gone crazy: "He, therefore, who advocates the doctrine of present perfection in human productions, suggests, at least, the possibility that the amount of mind which is unnecessary to the successful application of the present principles, means, and inventions to their respective purposes, is rendered a redundancy by the want of appro-

priate subjects upon which to operate."—*Comstock's Elocution*, p. 18.

Now this popular school-book means by this bombastic sentence very little more than that "you must not cram too many eggs in one basket;" or perhaps as Comstock himself would render it, "He who is laboring under an excruciating hallucination as to the compressibility of illimitable ovoid gallinaceous productions, within a limitable salicaceous vesicle, will expand his ocular organs in a profound ratio to their normal condition, when he discovers the amazing redundancy by the want of appropriate subjects upon which to operate in his frantic efforts to get them all in."

Never mind the fine writing. Tell us what you know in the fewest and plainest words you can think of. It will all the better suit us and most of our readers.

TYPOGRAPHICAL ERRORS.—The proof-reader of the GARDENER'S MONTHLY deserves great credit for his general accomplishments, when the peculiar handwriting of the many contributors is considered. Though the editor usually glances over the proof-reader's work to watch the technical terms, he seldom finds much to correct. In this confidence he left the whole to the office while he attended the Nurserymen's Meeting at Dayton; but unfortunately just on this occasion quite a number of typographical errors have occurred. It so happens, however, that most of these are readily correctible by the reader, and need not be specially referred to here. While writing this it may be as well to say that in the handwriting of those who regard themselves as very plain penmen, whole lines have to be guessed at by printers, and the proof-reader knows what is meant by the context only. In the majority of cases where complaints come of typographical errors, they are the writer's own fault. This will probably never be otherwise; but we may ask our correspondents whenever they come to the name of a plant, or other technical word, that these at least be written especially plain, for no ordinary printer or proof-reader has any faculty short of inspiration for guessing at these words. They are not in either Webster or Worcester, and defy the usual references of the ordinary printing office.

LEGEND OF THE MARIGOLD.—The *Gardener's Chronicle* has some very interesting sketches of popular flowers, telling the story of the tales told about them. Of the Marigold it says: "The garden Marigold, another gaudy summer flower, was apparently a very great favorite with our ancestors, although nowadays seldom seen. Thus Shakspeare, speaking of it in his *Winter's Tale* (act iv., scene 3), says—

> 'The Marigold that goes to bed with the sun,
> And with him rises, weeping—these are flowers of middle summer.'

There is a popular tradition that the name Marigold arose from the circumstance of the Virgin Mary having worn this flower in her bosom. It is called by the French '*Souci du Jardin*,' and by the Germans 'Geldblume.' In days gone by it was termed 'Ruddes,' and the author of *Grete Herball*, in speaking of it says: 'Maydens make garlands of it when they go to feestes and brydeales.' In America the Marigold is termed the 'Death-flower,' from a curious tradition that it sprang up in places where the blood of the unfortunate Mexicans had been shed, who were destroyed by the Spaniards."

The American part of the account requires amplification. We never heard of the yellow garden Marigold called "Death-flower" in America, and by the English name "Death-flower" we must understand English speaking America. But as the Mexican and Spaniard are introduced, it is probable that the Spanish massacre of friendly Mexicans, in the City of Mexico, is referred to; it may be that there is in Mexico a plant called by a name which would mean "Death-flower" if translated to the English language. But if there is a flower in Mexico with such a name, and such a legend attached to it, it is unlikely to be the Marigold connected with the tradition of the Virgin Mary, the Calendula officinalis, but more probably a species of Tagetes, which is known in gardens as French Marigold, many species of which are natives of Mexico, while the Marigold of the Virgin Mary is wild in the countries of Southern Europe.

To many these matters, connected with the true histories of plants from a popular standpoint, may seem of little importance, so far as strict accuracy goes. But we are inclined to believe these popular histories are often very instructive in various ways, and should be rendered as strictly accurate as any.

ADVERTISING.—"One who knows" has our thanks for calling attention to the intrusion. It is not always possible to keep rats out of a granary, but when the hole is kindly pointed out, it will be stopped at that place at any rate.

IMPROVED MODERN TRAVELING.—Moses Thatch-

er, an intelligent gentleman of Salt Lake City, believes that at the confusion of tongues which followed the building of the Tower of Babel, some descendants of Noah built boats and started at once, under the guidance of Providence, for an unknown land. In other words, they sailed from Asia to the American continent, and the Indians are their descendants "to this day." Mr. Thatcher fortifies his views by an extract from the book of Ethers, a part of the Mormon Bible. He says: "In the third chapter and third verse of same book, we find this language: 'Behold, O Lord, thou hast smitten us because of our iniquity, and hath driven us forth, and for this many years we have been in the wilderness; nevertheless thou hast been merciful unto us.' The first verse of the same chapter mentions *eight* as being the number of vessels built by divine command, and in which this colony crossed the great deep. The sixth chapter gives a detailed account of their entering these barges, which were the length of a tree, with their families, animals, fowls, food, seeds, etc., and the Lord caused a furious wind to blow unceasingly towards the promised land. 'And thus they were driven forth, three hundred and forty and four days upon the waters; and they did land upon the shore of the promised land.'"

We see from this how slow ships sailed in the olden time. If these voyagers came from land to land in anything like a direct line, these vessels only made the trip of eight thousand miles at about a mile an hour. But if we give the widest possible distance in which the three hundred and forty-four days were consumed—say from the coast of Cochin China to the Isthmus of Panama—again say fourteen thousand miles—they only made a mile and three-quarters an hour, although with the aid of a furious wind blowing in their favor all the time. We see from this how wonderful has been the advance in nautical travel since father Noah's time.

GEOGRAPHICAL.—The advertisement of a leading English firm tells us that "it was raised by Nantz & Neuner, of Louisville, New York!" In a little piece of ground like England, where you may land at one edge in the morning and tumble over into the sea at the other side before sunset, it will no doubt be difficult to understand that Louisville is hard on to a thousand miles from New York, and that even then we are little more than over the threshold of entry into the United States. When we see these continuous geographical blunders of our old-country friends, the disposition to smile is checked by the recollection of their cramped surroundings.

HORTICULTURE AT CINCINNATI.—The Horticultural Department of the Cincinnati Annual Industrial Exposition is one of national importance. The premiums for plants, fruits and other horticultural items are very generous. September 1st it will be ready for the reception of plants.

NURSERY CATALOGUES.—These are getting now so voluminous that no one has time to read them. Only those which present some special features make their profitable way through the community. It is interesting to note how those enterprising firms who perceive this try to keep in the advance. Here, before us, is a scheme by Krelage, the well-known Haarlem florist. Instead of a book as big as the Bible, he has a very pretty little tract, with a full page picture of a plant and a page of historic matter. Take, for instance, the following, which we translate about the Asiatic Ranunculus: "When, in the year 1754, the good priest of Ardene published at Avignon his 'Treatise on the Ranunculus,' this flower became one of the finest ornaments of the garden. The magnificent collection of Mustapha pacha, transported from the East to France, and improved in the latter country, enjoyed at length the attention of the florists of Haarlem who brought them to great perfection, as seen in the case of other species of bulbous plants. That their improvement has not been forgotten in our times is proved by the grand new semi-double French varieties, and by the results obtained in our own country, which even surpass those obtained in other lands. The Turkish Ranunculus is among the first of the showy flowers which adorn the hardy flower garden in early spring."

While referring to this matter, we may note that the "Poppies" referred to in our recent remarks suggested by a Philadelphia paper, is the popular name in Philadelphia for these Turkish Ranunculuses. It is of course all wrong to call these things "Poppies," but the name has begun to run and there will be no stopping it.

DEPARTMENT OF AGRICULTURE.—Dr. Comstock has resigned his position as Entomologist, and Dr. Loring has appointed Prof. Riley to succeed him.

DR. MAXWELL T. MASTERS.—The name of this gentleman is familiar to most of our readers as

the editor of the London *Gardener's Chronicle*, to which he succeeded on Dr. Lindley's death. He is also known to others as one of the most distinguished of European botanists. The *Gardener's Magazine* of June 4th has a portrait, with a sketch of his life and service. He was born in Canterbury in 1833, his father being a nurseryman, as well as once Mayor of that city. He became editor of the *Gardener's Chronicle* in 1865, and has conducted it with marked ability. One of the strong points in his editorial career, as it strikes an American reader, is the good spirit with which all horticultural questions are discussed in its editorial columns. If Dr. Masters ever felt that he had personal scores to settle with any one, certainly no one could ever learn this from his pen, and in this respect the *Gardener's Chronicle* has been a model in its class of journalism.

M. B. Bateham.—A monument to the memory of this public spirited horticulturist is talked of. Dr. Warder takes great interest in its success.

Jean Sisley.—This well-known and estimable amateur horticulturist, of Lyons, France, recently passed his seventy-seventh birthday.

Miss M. Evelyn Hunter.—We are sure our readers will be sorry to learn of the death of this young lady, whose interesting sketches of Virginia wild flowers in our magazine during the past few years, gave promise of great future usefulness. She was the youngest daughter of ex-Senator Hunter, who, with her aged mother, is still living in the old homestead near Lloyds, where she died. From one of her friends we have the following tribute to her memory:

"Died at the residence of her father, R. M. T. Hunter, in Essex County, Va., on the 11th of June, 1881, Miss M. Evelyn Hunter, at the age of 26 years. Having made in early life a profession of the Christian faith, subsequent years had developed her character to fit it for a calm and noble life. An exalted purity of thought and action, combined with a quiet devotion in ministration to the wishes of all around her, endowed her with a peculiar gift of usefulness and efficiency. An ardent love of nature in all its forms, animating a vigorous constitution, prompted her in her quiet country life to form extensive acquaintance with the beauties of the vegetable world, and her interest in any new type of beauty was as intense as it was untiring. Many schemes for the development of fresh resources from the inexhaustible wealth of the florist's world have perished with her opportunity to promote them, and in the termination of her brief but remarkably beautiful career, many, even outside of her personal acquaintance, will share with the latter their deep regret for a common loss."

Hand-book of Practical Landscape Gardening.—By F. R. Elliott. D. M. Dewey, publisher, Rochester, N. Y. When one travels through the country and notes how poorly some farms and rural residences are in all their surroundings, which, with a very small expenditure of money and labor, might be made beautiful, any work which would suggest to these unfortunates how to do better, we feel to be doing a useful work. This is just the missionary ground for a work like this. Small and cheap, with illustrations which do not cover more ground than one without any taste can readily comprehend, it is just the thing needed. That it has done good work is evident from the fact that a new edition should be called for. All who wish well to rural taste will hope that this will be as popular as the first.

Select Extra-tropical Plants, suited to the industries of Australia.—By Baron Ferd. Von Mueller. Published by the Colonial Government. This is a new edition of a very valuable work which the Government of New South Wales has encouraged under the intelligent supervision of Baron Mueller. As a sample of what is done for the information of the colonists by this work, we open at random, and at page 281 select the following: "Quercus Prinus Linnæus, the North American swamp oak or chestnut oak. A tree ninety feet high, stem up to fifteen feet in girth, available for wet localities; foliage deciduous; wood strong and elastic, of fine grain; according to Porcher it is easy to split and not hard, used for building purposes, also cooperage. A red dye is also produced from the bark. The bark is one of the most important among oak barks for tanning, furnishing a very solid and durable leather. Quercus bicolor of Willdenow is closely allied to Quercus Prinus; trunks have been measured thirty feet in circumference." Thus the work proceeds through every plant known to have in likelihood any interest to Australian people. Of course in gathering together such an immense amount of facts about strange plants and trees,

Dr. Mueller has had to make use of the best information he could get, and some will necessarily be imperfect. Thus in the case we happened to turn to and quote, much of what is said of Quercus Prinus really refers to Q. bicolor, which, notwithstanding the classification of many authors, is much more nearly related to Quercus macrocarpa than to the ordinary chestnut oak. The name swamp chestnut oak, often given to Q. Prinus by authors, is misleading, as whether we take the typical form or the "variety monticola," it is never found in swamps that we know, notwithstanding its original name of Quercus Prinus palustris by Michaux. It makes a fine tree when it grows in low alluvial soil, as it sometimes does, and this gives it some peculiarities not evident in those trees which grow in more hilly places. It is one of the most useful of all oaks, especially, as Dr. Mueller suggests, for tanning purposes. But the oak bark is almost always taken from the trees which grow in the mountain districts. In the Cumberland mountains chestnut oak bark is an important item of trade.

HORTICULTURAL SOCIETIES.

EDITORIAL NOTES.

THE NURSERYMEN'S MEETING AT DAYTON.—The writer once heard a bank officer say, "I am surprised at the extent of this business; I thought it was but a tup-penny sort of a thing, and wondered where the profits could come out of a few five-cent pot plants." This has been a popular impression. Even hosts of nurserymen have no conception of the vast extent and importance to the community of their own business. It is estimated that the railroads alone carry forty millions of dollars' worth of nursery products over their lines every year. To show just what the nursery business is and the claim it has to intelligent recognition from the community, is one of the leading objects of this association. To say that the Dayton meeting made a great stride towards carrying these points is but a partial tribute to its success.

One of the leading topics of discussion was how to make the railroad companies pay that respect to the business which its great importance deserved. The delays and vexatious rules to which many companies subject it, were freely exposed. One party in the convention seemed to think nothing could be done with the present organizations, and could see no remedy but in the United States Government taking possession of the whole thing, as it now does the post-office. Another party thought this was going out of the frying-pan into the fire, as the government was not responsible for any losses, and any increase in the army of office-holders was always a fearful thing to contemplate. The majority of the meeting seemed to think that the best way to remedy the evil was to collect exact statistics of the immense amount of capital invested in the nursery trade, when, armed with the exact facts, a committee of the body would be more likely to meet with respectful attention than while the corporations looked on the nursery trade as little more than dealers in five-cent pot plants. The chief objection to this suggestion came from those who wanted "something done now," and who believed a mere resolution of condemnation from the meeting, without waiting for the collection of the facts, would be all that was needed.

Mr. Wm. C. Barry, of Rochester, was elected President for the next term amidst great enthusiasm, and the next meeting voted to be held there.

COLORADO STATE HORTICULTURAL SOCIETY.—We noted recently the rapid rate at which Denver has sprung into the ranks of horticulture. It has now a State Horticultural Society, the first meeting being held in June, at Denver. Strawberries, gooseberries, and currants were the chief fruits, and some Ben Davis apples of Colorado growth were exhibited from last autumn's crop. Fuchsias, geraniums, and leaf plants were among the pot plants exhibited. The principal exhibitors of flowers were Avery Gallup and Rushmore & Co. Cut flowers were in great quantity. So successful was the exhibition that another will be held in the autumn.

HENDERSON'S

HANDBOOK OF PLANTS.

BY

PETER HENDERSON.

This new work is designed to fill a want that many amateur and professional Horticulturists have often felt—the need of a concise yet comprehensive Dictionary of Plants. The work above named, written and compiled with great care, we think will fully meet such a want.

The scope of the work embraces the Botanical Name, Derivation, Linnean, and Natural Orders of Botany of all the Leading Genera of Ornamental and Useful Plants, up to the present time, with concise instructions for propagation and culture. A valuable feature of the book, particularly to amateurs, is the great care that has been given to obtaining all known local or common names; and a comprehensive glossary of Botanical and Technical Terms is also given, which will be found of great value even t horticulturist. As a book of re Handbook of Plants all pra tical purposes, of ominous European works written with a view to m gaged in Horticulture in t for the culture of many i given at length.

Henderson's Handbook of Plants is a large octavo volume of four hundred pages, printed on fine paper, and handsomely bound in cloth.

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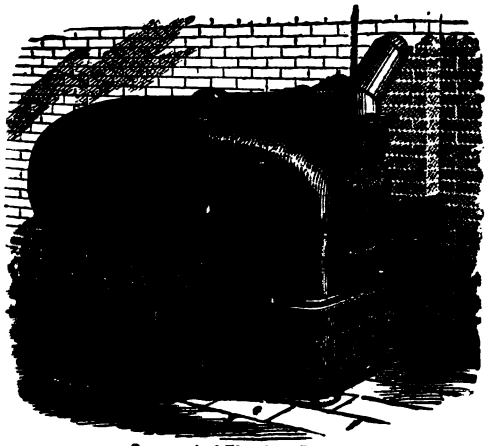

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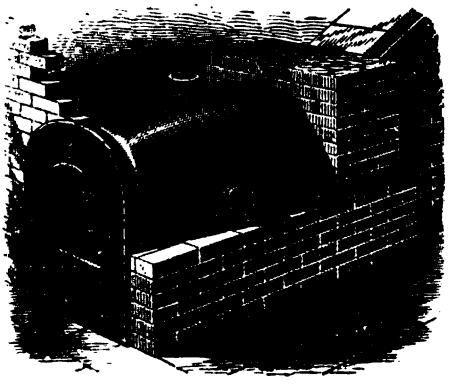

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Osage Orange Plants, Fruit Seeds, etc.

FOR FALL OF 1881.

The **SPRING** was so favorable to the growth of plants that our **Osage Orange** will be remarkably fine this season. Those wanting them in large lots will meet with favorable terms.
Correspondence desired with those who may need plants, or who may want

Mazzard Cherry Seeds, Plum Seeds, Peach Seeds, Mahaleb Seeds,

Or Seeds of any Forest Trees or Shrubs.

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This celebrated plant has been pronounced unequalled as to its value and efficacy by any other production ever introduced on the American continent. Its growth and general use will eventually destroy all noxious vermin which infest the dwellings and persons of men and the domestic animals, as well as the insects which create such havoc with the products of the soil and of human industry.

Among the eminent scientists who have given the Pyrethrum exhaustive and thorough examination and trial may be named Prof C. V. Riley, Chief of the United States Entomological Commission, and Prof J. Henry Comstock, of the Agricultural Department, Washington, D C.; Prof A. J Cook, Agricultural College, Lansing, Mich., and Prof E. W. Hilgard, State University, Berkeley, Cal., all of whom unite in declaring it superior and infinitely surer and safer than any other insecticide ever offered to the public.

On receipt of $5 we will send a package of seed by mail to any address, with instructions for cultivating the wonderful plant from which our **G. N. Miloo's Buhach California Insect Powder** is made. Each package will furnish plants for two or three acres. All orders for seed must be sent to the

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All the Necessary Fittings for Hot Water Heating Apparatus

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We confidently expect the following within the next thirty days: **Cattleya mossiæ** in great variety; **Lycaste Skinneri, Masdevallia tovarensis; Oncidium papilio majus,** and many others from Central and South America.

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PERLE DES JARDINS,

2½-inch pots $7.00 per 100; 4-inch pots $18.00 per 100.

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2½-inch pots $10.00 per 100; 3 inch pots $15.00 per 100.

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2½-inch pots $10.00 per 100.

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ROSES are in fine condition, plunged outside.

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	Each	Per Doz.	Per 100
Acacia pubescens, yellow flowers, graceful foliage,	$ 50	$4 50	
Acalyphas Macafeana, Marginata and Musaica,	20	1 80	$12 00
Akelia Quinata, hardy climber,	10	1 00	8 00
Alocasia Macrorhiza variegata, foliage handsome,	50	4 50	
" **Jenningsii,** foliage marked green and black,	25	2 40	
Ampelopsis Veitchii, superb hardy climber,		1 00	8 00
Anthericum vitatum, foliage green and yellow,		1 50	10 00
Azaleas, assorted flowering plants, 3-inch pots,		1 50	10 00
" " " " 4- "	25	2 40	15 00
" " " " 5- "		3 60	25 00
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" " " " 7 and 8-inch pots,	2 00	18 00	
Begonia rubra, flowers bright coral,		1 50	10 00
" **rosea,** flowers light rose,		1 50	10 00
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Camellias alba plena, old double white, all with buds, 2 to 3 feet,	2 50	24 00	150 00
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" " " " " 10 to 12 " 4- "	50	5 00	40 00
" " " " " 4 to 6 " 3- "	25	2 40	15 00
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Coleus of 1881, the five new imported kinds,		1 00	8 00
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Perle des Jardines (The Florist's Rose), 2-inch pots,	1 50	10 00
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THE

GARDENER'S MONTHLY
AND
HORTICULTURIST.

DEVOTED TO HORTICULTURE, ARBORICULTURE AND RURAL AFFAIRS.

Edited by THOMAS MEEHAN.

XXIII. SEPTEMBER, 1881. Number 273.

FLOWER GARDEN AND PLEASURE GROUND.

SEASONABLE HINTS.

When we come to practical culture there is that must be repeated, but yet there are y things brought out in our contributors' ins that become confirmed as good doc- and we are able from time to time to ace new ideas into these very practical s of Seasonable Hints. For instance it established beyond all question that a or shrub, taken out of a poor soil, will not transplanting as one that has been well fed. instance, if five years ago two Norway ces were planted, both of same age and in both just alike, but one should receive no ure for all that time and the other have a manure every year, the chance of success moval will be very much in favor of the d tree. Numbers of trees with good roots ell planted, die after removal simply from ened constitution brought about by poor

Another capital fact of practical value to planters has been developed through the tributors to the GARDENER'S MONTHLY, and which is only just now becoming well known. It has always been understood in this country that a transplanted tree is safer for being pruned, but the pruning generally consisted of shortening in all the branches, strong as well as weak. But it is now found that the tree should not be shortened in, but merely thinned out. All the weaker branches should be cut out, and the strong ones left Any extensive planter who has read of these things in our pages, will have saved his subscription price a hundred times over.

And then there is the practice becoming now better known than the others. also first learned through our pages, that it is not possible to pound the earth too tight about a transplanted tree. It is not possible to avoid all risks in transplanting. The art will never be so perfected that some will not die; but year by year we are learning; and mortality, where all the good conditions can be controlled, will be less than ever before.

Another thing may be remembered, that trees die in winter from drying out. Therefore give the roots all the chances you can to heal and grow before cold drying winds and frosts come. One of the best of these chances is to plant early. Plant as soon as you can after the fall rains come. It makes little difference whether the yellowed leaves have all fallen or not.

Another interesting thing has been learned about lily culture. They get diseased and die out. But they are not half so liable to these misfortunes when they are planted deep. Lilies should be set six inches beneath the surface. The autumn is the time to plant lilies, as well as most other hardy bulbs.

There is not so much enjoyment in summer as in spring flowers. After the total absence of

floral beauty during winter, the spring blossoms are doubly welcome—and then the season of the year renders them enjoyable beyond anything that the heats of summer will allow. From now until November the hardy flower roots will be sought for as amongst the most interesting of spring flowers.

Unless very well acquainted with the varieties of hyacinths and other bulbs, it is best to leave the selection of the kinds to the dealer. The best manure for all kinds of bulbs is rotten cow manure. Half rotten stable manure, or rank matter of any kind, is not good. Very rich garden soil, without manure, is better than to have this matter fresh.

Attention should be given at this season to the flower-beds, by noting what has done well in your locality as a summer-blooming plant, as no time should be lost in procuring a stock for next year. The best way to propagate all the common kinds of bedding plants is to take a frame or hand-glass and set it on a bed of very sandy soil made in a shady place in the open air. The sand should be fine and sharp, and there is, perhaps, nothing better than river sand for this purpose. The glass may be whitewashed on the inside, so as to afford additional security against injury from the sun's rays. Into this bed of sand, cuttings of half-ripened wood of the desirable plants may be set, and after putting in, slightly watered. Even very rare plants often do better this way than when under treatment in a regular propagating-house. In making cuttings, it is best to cut the shoot just under a bud,—they root better, and are not so likely to rot off and decay. A cutting of about three eyes is long enough for most strong-growing things, such as geraniums, fuchsias, &c.

Small-growing things, of course, will take more buds to the one cutting. From one to three inches is, however, long enough for most cuttings. They should be inserted about one-third of their way under sand, which latter should be pressed firmly against the row of cuttings with a flat piece of board,—not, however, hard enough to force the particles of sand into the young and tender bark, which is often the first step to decay. For a few cuttings, they may be inserted with a dibble; but where many are to be put in, it saves time to mark a line on the sand with a rule or straight edge, and then cut down a face into the sand, say one or two inches deep, when the cuttings can be set against the face like box-edging. All amateurs should practice the art of propagating plants. There is nothing connected with gardening more interesting.

COMMUNICATIONS.

ROSE NOTES.

BY MRS. R. B. EDSON, MELROSE, MASS.

The readers of the MONTHLY will most likely see reports of the Massachusetts Horticultural Society's June exhibition before these "Notes," are laid before them. But such a magnificent display as was then made will bear reporting very many times.

Besides, no two persons see exactly alike, as is evidenced by the contradictory descriptions given of roses. I have a theory that the great majority of catalogueers are color-blind. I see no other way of accounting for the different colors a given rose has, after running the gauntlet of half a dozen catalogues. If, therefore, rose shows had no other excuse for being, this would be enough, the bringing of them face to face with the people who can then select their roses according to their own ideas of color, and be reasonably sure of knowing what their rose-bed will look like.

For instance, the new H. P. Alfred K. Williams, is represented as carmine and magenta. It is much too dark for either of those shades—at least the specimens I saw were. It is a very splendid dark rose—as dark as the Pierre Notting which were near it most—and of large size and fine form. I do not think this rose has been praised enough. I am in ignorance as to its free-flowering qualities, but I put it unhesitatingly at the head of my list of future roses.

I had never seen Jean Soupert before, and although Mr. Ellwanger says it is a shy autumn bloomer, that went down next. It is, without exception, the richest in color and shading of any rose I ever saw. The tints of plum, maroon and crimson were so finely blended and the size and form were so excellent that I think it deserves to stay at the head of the list of very dark roses; and next it, and for some reasons preferable (notably freedom of bloom) is the old Louis Van Houtte. There were some fine specimens of this rose on exhibition, and its rich, velvety maroon contrasted beautifully with the fiery vermilion of the Duke of Edinburgh, the superb carmine red of Etienne Levet and the exquisite pale pink of M'lle Eugenie Verdier. This last is

the most beautiful pale pink rose in my eyes of any shown, though many might prefer Baroness Rothschild. Madam Gabriel Luizet is a lovely shade of rosy pink, and of fine cupped form. Mabel Morrison is the nearest perfect white I have yet seen. It is of good size and cupped form.

Marchioness of Exeter is another fine new sort, rosy-red in color, and very attractive. Boildeau I do not like. It is of the expanded, flat form and has a coarse look, and is not a pretty shade. Grand Duke Nicholas and Dr. Sewell were shown, but I failed to see their superiority over many of the older sorts of the same color. For bright, deep pink, Countess of Oxford and Marquise de Castillene were as fine as anything shown.

I had hoped to see some of Bennett's new hybrid Teas, but none were exhibited. Possibly the exhibitors thought it best not to give us a surfeit of sweets. As it was, it was by far the grandest exhibition ever given by this society, and worth going a long way to see.

Before closing this rose gossip, I wish to recommend the new hybrid Tea, Reine Marie Henriette, or as it is sometimes called Climbing Tea. Through the generous courtesy of Messrs. Ellwanger & Barry, I received a young plant of this new rose in the spring. It has grown vigorously and borne (even as early as the 28th of June) some of the loveliest roses I ever saw. The shade of color is a beautiful tint of cherry, with a shade of violet at first and then a suggestion of glowing orange as it catches the sun. The form is peculiar and charming, and mine measured four and one-half inches across. For a brilliant-colored and showy rose, I do not know its equal. Does anyone know anything about its hardiness? A hybrid between Jacqueminot and one of the Gloire de Dijon race ought to be hardy. But hardy or tender, it is the most distinct new rose, and one of the most satisfactory that I have seen.

At the risk of tiring both editor and reader I venture to mention the exhibit made at the June show by V. H. Hallock, Son & Thorpe, Queens, L. I., N. Y., of fine Irises. I had never seen the new Iris Kæmpferi before; neither, I think, had many of the visitors, judging by the expression of admiration I heard. They are so unlike our old garden sorts that one has to see them to realize their great beauty. They are of a flat, or nearly so, expanded form, and the collection embraced a great variety of shades, some of them exceedingly rich and effective They deserve to be much more widely known than they are.

SOME ORNAMENTAL SHRUBBERY.

BY JOHN JAY SMITH, GERMANTOWN, PHILA.

Salisburia has not taken its proper place in decorative art. Mr. Parsons in *Harpers'* gave a first appeal to its value as a vine—more properly as a plant, to cover a house, in most respects superior to any deciduous climber; or rather, with a little help, an adornment for the outside of a house. Fifty years ago I began its treatment as a runner and carried it around a space of some two hundred feet in a circle, the ends meeting at the original point. Since then I have trained a tree to the height of a large cottage in my garden, at Germantown, with side branches running on the wall to the entrance. It attracts more attention from its novelty of appearance than anything I ever planted.

The Sophora Japonica pendula as a creeper has no rival. The difficulty seems to be to get them grafted sufficiently high, as that makes them dear and costly to transport; but no collection should be without a specimen of this curiously contorted small tree.

The Weeping Beech is not sufficiently patronized. Nothing in my grounds is more interesting, while the Parsons' tree at Flushing is simply grand and surprising. In selecting a specimen to plant, see that it is furnished on every side.

The Yucca as a hedge is wonderfully attractive. Get, if you can, the scarcer gloriosa, &c.; but filamentosa, &c., will do for July blooming. The gloriosa blooms in the fall.

The Clematis as I write is in full bloom, and beautiful are almost all the sorts. A learned friend, however, objects to the race because of their short continuance of bloom, and is he not right?

The Hydrangea paniculata and other new varieties, the writer still believes are the best late introductions for the garden, especially for the country cottage and farm house. The bloom comes just when it is wanted, while other bloom is gone.

EVERGREEN HEDGES.

BY ISAAC HICKS, OLD WESTBURY, N. Y.

The American arborvitæ is most planted here, but I think is not the best in all respects. The

Siberian is more hardy, requires less trimming, is of a finer shade of green, and the plants are not much higher priced. But of all that I have seen none equal the hemlock, where the soil is adapted to it. White spruce bears the shears nicely, and if planted when small and of good shape will make a strong, enduring and compact hedge, and they are especially valuable as a wind-break. The winds and storms of winter have little effect on them, and snow and ice do not break the little twigs which so often cover the ground after a severe storm, as is the case with the Norway spruce. I have seen an excellent hedge of the Norway planted when small and about one foot apart. The growth was but a few inches a year, and they were easily kept in their proper limits. Indeed, many planters err in planting too large trees and too far apart. Young, thrifty plants, eighteen inches, and planted twelve to sixteen inches apart, do the best.

RARER ORNAMENTAL TREES AND ORNAMENTAL GARDENING.

BY SAMUEL PARSONS, JR.

(Prize Essay for Massachusetts Horticultural Society.)

To explain the meaning and fair application of such words as promising, new and hardy, and to suggest a tasteful and effective arrangement of a series of ornamental plants that may properly be included in such a definition, I cannot perhaps do better than describe to you a choice and well planted lawn. The picture, as a whole, will then explain itself as well as the manifold relations of various parts. I desire, indeed, to make evident the unity and just proportion of the scene, and, at the same time, to dwell duly on the individual traits of each plant. These plants cannot fail to gain peculiar interest when you come, as it were, to associate with them and study sympathetically their wants, caprices and many lovely qualities.

Here is the picture:—A simple cottage, low, rambling and picturesque, enclosed by boundaries of shrubbery on every side. Fifty feet east and west extend the side lawns, and down to the north slopes gradually the main stretch of turf, till it ends in the winding banks of a clear and rapid stream. A part of the bank is somewhat marshy, and here the opportunity has been taken to plant sundry interesting herbaceous plants or wild flowers that affect such spots. Willows of various kinds droop over the water, and birches strike vigorous roots into moist and congenial soil. Alders wave and cypresses stand elegant and tall in similar spots, until we come to solid dry land in the northwest corner. Here are masses of Norway spruces, alternated with white pines, and here and there an Austrian pine. This evergreen grouping extends nearly up to the house. The shelter thus afforded is therefore most complete, forming protection and background alike. This portion of the frame-work of the picture also serves to bring out harmoniously and effectively sundry beautiful groups and single specimens of the finer evergreens. As we approach the house, these evergreens become smaller and more dwarf, until immediately about the building we find plants that grow only two feet, perhaps, in ten or fifteen years. Back of the house and on the sides grow deciduous shrubs, large and effective, bordering the entire remaining portion of the domain. These are varied at intervals by the loftier heads of deciduous trees, maples, elms and the like, the trunks of which are entirely hidden by the thickly and naturally disposed shrubbery. On the corners, especially, are planted large elms, intended to mark and define more completely the boundaries of the lawn. Just within the enclosure grow a few choice, medium sized trees, standing isolated, as it were, but everywhere else we meet mere shrubs or dwarf trees. As a rule, moreover, we find evergreens and deciduous plants each grouped by themselves.

Yet with all this variety of trees, the lawn proper, or greenaward, remains very prominent, its broad, well-cultured stretches being on the whole the most noteworthy part of the design.

Wandering amid such scenes as I have just hastily sketched to you, let us take sundry notes, giving our attention chiefly to new, hardy, ornamental trees and shrubs, and their tasteful and effective arrangement. As we turn into the paths immediately about the house, the first objects that attract special attention are various small shrubs, or rather miniature trees. We are struck by them, because though they have evidently a family likeness, they are yet as diverse in appearance as it is possible for plants to be. They stand either singly in some prominent position, or in clusters of three or five on curves or intersections of paths. There must be at least twenty of them, and scarcely two of them alike. Inspection of their labels tells us they are Japanese maples, chiefly but not entirely of

the polymorphum species. Rare curiosities indeed! We doubt if you have often seen their like before. Yet they have been known to explorers and plant collectors fifteen, twenty, and even, in some cases, fifty years. Experts have long recognized how remarkably their shapes vary, from the more common type of maple foliage to the extreme of cut-leaved forms, and how their lace-like tissues are dyed with purple and gold in June. They have been exhibited and sold in Europe, in a limited way for at least fifteen years, but, strange to say, in face of the simple facts, there has existed a wide-spread conviction that their hardiness is defective. Hence we read of them as pot-grown, a condition that must always prevent the full, free development of their beauty. Some one must have finally, and perhaps accidentally, left them unprotected in the open ground during winter, for we may now find them growing in the most exposed positions, apparently as hardy as any maple. The only weakness of which they now continue to be accused is a tendency to burn and fade under the stress of exceptionally hot summer days. But as there are very few established plants in this country, perhaps we may find that as they become more permanently settled in the soil, even this weakness will disappear. I know such to have been the case in Mr. Thomas Hogg's collection, which includes the specimens which have been longest planted in this country. They were imported somewhere about 1862 and 1864. Any summer day one may see in this collection all kinds of Japanese maples standing entirely uninjured by sun or cold. The fact is, that most, if not all, Japanese maples, set out up to this date, have been imported from Japan and accustomed to very different conditions in their own country. They have also, in all probability, been hurt to the core by the voyage, and in addition to this have been weakened for our purposes by the Japanese system of ultra dwarfing, so that it is not strange if they seem to have a poor chance in America. I feel confident that American born plants, when we have them well established on our lawns, will do better; but even as it is, scarcely one summer in five will specially burn their leaves, and as they grow older the danger decreases. It must be remembered, moreover, that no variegated-leaved plants stand the heat of July and August without injury. They may not, in many instances, burn, but they will fade. A natural query also arises, as to why Japanese maples are so rare. They have been long recognized as gems among hard-wooded plants, and for house interior decoration only, would have been well worth extended propagation. This question may be fairly asked, but the answer thereto is not easy to find. A practical system of propagation has, for some reason, remained until recently undiscovered. Layering was found to be a slow and unsatisfactory process, and seed would not, of course, reproduce with any certainty the different varieties. American and European maples were employed in vain as stocks to receive Japanese scions, because the junction made by grafting, though apparently successful for a time, invariably failed within a year. Finally, after the manner in which such discoveries usually happen, several propagators in both Europe and America about the same time came to the conclusion that they must use the parent stock, polymorphum, for all varieties of its own offspring. It was all very simple, but then why did no one think of it? Thanks to this discovery we may now hope in a few years to see Japanese maples more plentiful throughout the country. Nevertheless we need not hope that their propagation will ever be easy. It would be contrary to the nature of the plant.

(To be continued)

EDITORIAL NOTES.

HARDINESS OF VEGETATION.—Notes on the comparative hardiness of plants are always valuable. When any one thing has been found to endure every variety of unlucky experiences, it is so much in its favor. But it must not be forgotten that the discoveries of late years put a new interpretation on these facts Plants, woody plants particularly, die during winter from the evaporation of their juices, and not because their cells have burst by liquid expansion; hence we have to take evaporating influences into consideration quite as much as the state of the thermometer. Indeed, the thermometrical degrees are of no account, only so far as they influence evaporation. All other things being equal, there would be more evaporation at 20° than at 30°, and more at 10° than at 20°. But dry wind has an influence, and, as clearly shown by Deherain, Anders and others, light has an influence. Two trees of the same species may not be fifty yards apart; one may be in the eddy of a wind current, and the other protected by a single bush from both

wind and bright light—the former get killed and the latter escape. The next year it might be reversed. The dry, cold current coming from another quarter, the favored one last year would be the one to suffer next. Besides this, the ability of the roots to supply an excessive drain on the liquid reservoirs has much to do with hardiness, and the plant which has been lucky enough to send down a good tap root, has a great advantage in the war with the elements. But even the past has an influence. At the time the leaves begin to fade in the fall—that is to say in the early autumn season—there is less moisture in wood structure than at any other time; but from the time the leaves begin to fade the wood begins to lay up a store of moisture against the drafts of winter. If the cells have been injured by excessive drouths, by fungus attacks, or by any other weakening influences, they cannot store up as much as they would otherwise, and such a plant will die before another which has had a better chance, though every other circumstance is equal.

We thus see that though the condition of the thermometer has much to do with hardiness, it is only so far as it influences evaporation; and there are numberless other conditions which influence evaporation besides.

DUPLICATION OF NAMES.—Nurserymen in England are not, as a general thing, as careful as they might be in getting the correct name of a plant before it is distributed, and hence we have often the annoyance of buying the same thing under several names. We must except from this criticism the houses of Bull and Veitch, which seem especially cautious in regard to the accuracy of the names they adopt for their new plants. We have had for some years in our collection Forsythia suspensa and Wiegela floribunda (distributed as such by Van Volxem), and added a couple of years ago Forsythia Fortuni and Wiegela "John Standish" from England, only to find they were the same we had had for years before.

MAAKIA AMURENSIS.—Dr. Hooker regards this plant as not distinct from Cladrastis. It will therefore have to be in future Cladrastis Amurensis—a companion to our species formerly Virgilia lutea.

FERN-LEAVED BEECH.—Of this, one of the most beautiful of ornamental trees, there is a magnificent specimen in front of the Redwood Library, at Newport, R. I. It was planted about 1840, having been presented to the library company by Mr. Robert Johnstone. The tree was bought at Dyer's Nursery, where is also a mate to it of the same age. They were bought of W. R. Prince, of Flushing, for $4 each.

LARGE PURPLE BEECH.—At Dyer's Nursery, near Newport, there is a blood-leaved beech forty feet high, and with a trunk three feet in diameter.

AMPELOPSIS VEITCHI.—This is one of the most valuable of all the climbers introduced during late years. It clings to the wall as ivy does, and will resist the coldest weather just as the common Virginian creeper does. It will in a single season cover an immense amount of space, though seemingly a weaker grower than the American species. No one who loves to have a pretty vine on a tree, fence or building, will regret planting it. We have seen it in various places from Canada to the Southern States, and it seems quite hardy everywhere.

LILIES AS FOOD.—The roots of our native lilies were articles of food with the Indians. According to a note of Mr. Van Volxem to the *Gardener's Chronicle* concerning Lilium auratum, it seems they are eaten also in Japan. He says: "It was much later, and far north of To-kio, that I saw them wild, coming out of the margin of the natural shrubberies, generally with a single huge blossom, sometimes two, rarely three. It is no wonder we got at first notice such quantities of them, as the bulbs are a common article of diet with the natives, and are sold everywhere as a vegetable in the markets. I have eaten them pretty often, and rather relished them, as they cooked, sweet, mucilaginous, and without any are, when decided taste to make them objectionable to a new-comer."

HARDY CACTUSES.—We have often wondered why our numerous species of hardy Cactuses are not more often seen in American gardens. A rock garden of cactaceous plants would be an unique feature in a well kept garden. Thoughts like these are again revived by the following from the London *Journal of Horticulture*, which is referring to an exhibition in London: "One of the most interesting collections of plants out of the competitive classes was the group of hardy cactaceous plants exhibited by E. G. Loder, Esq., all of which had been collected by himself in the Rocky Mountains at an elevation of 10,000 feet and more. A large number of specimens were contributed, many being in flower, and all in ex-

cellent health. The two most attractive were Echinocactus Fendleri, with large, bright rosy flowers, and E. gonacanthus, with bright orange blooms; but the others having chiefly pink flowers were also noteworthy. The species of Echinocactus were E. Simpsoni, E. phœniceus, E. viridiflorus, E. viviparus, and E. paucispinus; the Opuntias represented being O. Comanchica, O. Whipplei, O. Missouriensis, and O. arborescens. For the rockery and similar positions these plants are well adapted; and as they are from regions where the temperature at some periods of the year falls very low, they would no doubt prove hardy in any district of England, their chief enemy being excessive moisture." Like so many things relating to America which appear in European serials, the facts are not strictly correct. All the list were certainly not collected at an "elevation of 10,000 feet" or in "the Rocky Mountains." But we may say that nearly all named have been under culture near Philadelphia, and found to be as hardy as Mr. Loder finds them in England. Besides those named, may be added to the list Opuntia Rufinesqui, O. vulgaris and O. oplocarpa; Echinocereus conoideus and Mamillaria Missouriensis, called also in some collections M. Nuttallii.

HARDY HEATHS.—We saw a few days ago pictures of heath in full bloom, near Philadelphia, Erica vagans, Erica stricta and the common heather Calluna vulgaris. They had been several years in the place where growing, in broken, stony soil. A slight sprinkling of leaves, corn stalks or brush wood is thrown over every year to keep the wind off in winter.

HALE'S MOLE TRAP.—This mole trap, though one of the above-ground kind, has the advantage of having the teeth partially underground, so that chickens and other favored creatures are in no danger. Only the mole can spring the trap.

NEW AND RARE PLANTS.

LILIUM LONGIFLORUM FLORIBUNDUM.—Under this name Messrs. Kift & Sons, of West Chester, introduce a lily of which the enclosed is a representation. The flowers and foliage indicate that it has a close relationship to the form of L. longiflorum, recently named L. Harrisii. The difference is that while that seems to produce flowers ranging from three to twelve on a stem, this one runs from that to fifty-two, the number on this one engraved. It is simply more floriferous than that one has been found to be. This arises of course from some fasciation of the stems, and its value will depend on the permanency of this fasciation. For our part we see no reason why such a character may not be permanent in plants raised from offsets, as lilies are. If it prove so it will be an extremely valuable plant to the cut flower grower.

LILIUM LONGIFLORUM FLORIBUNDUM.

The Latin names given to these forms of Lilium longiflorum, we regret, as tending to botanical confusion. We think it far better that garden forms should have simply garden names, and the Harris and the Kift lilies would have been honorable names enough to distinguish these garden forms We shall be glad when this Latin practice is left wholly to European gardening.

ESCHSCHOLTZIA CALIFORNICA.—Dr Engelmann asks, in July *Botanical Gazette*, "why the occa-

sionally perennial character" of this plant, which he noted last year in California, "has not been observed before?" It has. It is not at all uncommon to find it this way under culture.

CLEMATIS, BELLE OF WOKING.—This is a cross between Clematis lanuginosa and C. Fortuni, and, as beautifully painted in the *Florist and Pomologist*, may be said to be a double C. lanuginosa. The old C. lanuginosa is not as popular as it might be. It is a free blooming, hardy kind, and, as it seeds freely, is a good mother plant for the hybridizer.

HIBISCUS COCCINEUS.—There are many beautiful flowers among our native plants which the "Native Flowers and Ferns of the United States" and Professor Goodale's "Wild Flowers of America" are doing much to make known. Hibiscus coccineus, figured in the former work, is just as showy as the Chinese Hibiscus, with the advantage of being hardy at least as far north as Philadelphia. A Southern correspondent tells us he is about to put it on the market, and we are sure he will do good work.

SCRAPS AND QUERIES.

HARDINESS OF CLEMATIS COCCINEA.—J. Jackson, Boston, Mass., writes: "I see that in the GARDENER'S MONTHLY for August some one asks if Clematis coccinea is hardy. I planted a small root last season; it stood the very cold winter well; has made all of two feet growth, and has been in bloom ten days or more."

A FINE ENGLISH GARDEN.—Mr. W. T. Harding writes: "During my horticultural rambles I have seen some excellent examples of 'Nature's art.' Amongst them M. T. Bass, Esq., the noted brewer of Burton, has probably one of the most extensive and well managed places in England. Situated at Rangemore, in Needwood Forest, and but three miles from where the writer was born, I naturally made my way there. Everything I saw was superb, and indicative of the master mind of Mr. Bennett, the skilful and courteous director of this great and grand establishment. Excellent, indeed, were the many illustrations of every branch of horticulture on every hand. In brief, the number and size of the glass structures were immense, and so was all connected therewith. The same may be said of the vegetable garden, lawns, flower gardens etc., which were as useful and beautiful as any to be found in 'the tight little island.' Perfect in every department, the whole is a credit to the executive abilities of Mr. Bennett as chief, and Mr. Rudd as foreman, under whom some forty under gardeners and laborers make this gem of the forest in every sense admirable. Other noted places, too numerous to name, would, although very interesting, occupy as much space and time in telling, as travelers' tales usually do. So I must leave them untold until I see you again.

But I cannot omit mentioning how universal is the sympathy expressed for the sad and dangerous condition our dear President is placed in, through the dastardly deed of a would-be murderer. I do not believe any living man is more respected on this side the Atlantic, or more beloved on the other, than Gen. Garfield, whom God preserve!"

GREENHOUSE AND HOUSE GARDENING.

SEASONABLE HINTS.

Those who have no greenhouse, and yet are desirous of preserving many half hardy plants through the winter, employ cold pits. Choose the driest situation in the garden, and sink about five feet in depth. It is important that no water can be obtained at the bottom. The pit may be of any length required, and about five feet wide, so as to accommodate six feet sash. The inside of the pit may be built up of boards, or, if something more durable and substantial is required, brick or stone. The body of the frame may be built up a few feet above the level of the surrounding soil, and the earth which comes from the pit be employed in banking up to the upper level of the frame. Shelving should be made for the inside so as to ex-

tend from the base of the front to nearly the top of the back, on which to place the plant in pots. In the space which will then be under the staging, hard wooded and deciduous plants, as lemon verbena, fuchsias, etc., may be safely stored, while the more succulent kinds are shelved overhead. The plants to be preserved in such a pit should be potted early, and be well established and healthy before being pitted; much of success depends on this. The less water they can be made to live on without withering through the winter the better they will keep. Straw mats must be employed to cover the glass when freezing time commences, and when the thermometer is likely to fall below 20°, straw or litter should be thrown over. Board shutters are also excellent, as it keeps the snow out from the straw and litter, which sometimes makes the mats very awkward to uncover when we would like to give air. Very little light or air will be required through the winter when the plants are not growing. If a good fall of snow covers the pit, it may lie on undisturbed for two weeks or more without injury. When a warm, dry day offers the sashes may be raised if convenient, to dry up the damp. Many kinds of border plants can be kept over winter in this way with little trouble.

Those who have greenhouses, pits or frames, will now see to having any necessary repairs attended to. White-washing annually is serviceable, destroying innumerable eggs of insects, in the war against which the gardener should always take the initiative; sulphur mixed with the whitewash is also serviceable. Powerful syringing is a great help to keeping plants clean, and should be frequently resorted to.

Propagation of bedding plants for another season will now be progressing actively. Geraniums, and other things with firm wood, do best in sand spread on the open ground, with a glass frame partially shaded spread over it. A great benefit will be found in most cuttings if they are placed for a short time in slightly damp moss for a few days before inserting the same, so that the wound at the base of the cutting may be partially healed or calloused over. Verbenas, and such cuttings, can be kept but a few hours, unless the wood is very hard. The harder the wood the longer they will do to keep so. Ripe wood of some things will be benefited by keeping two weeks. All this must be found out by each propagator himself.

It is very good time to look around for soil for potting purposes. The surface soil of old pasture forms the best basis, which can be afterwards lightened with sand, or manured with any special ingredients to suit special cases, as required. The turfy or peaty surfaces of old wood or bogs also come very "handy." A stock of moss should also be on hand for those who crock pots, in order to cover the potsherd; moss also comes in useful for many purposes connected with gardening, and should be always on hand.

Plants intended to be taken from the open ground and preserved through the winter, should be lifted early, that they may root a little in the pots. A moist day is of course best for the purpose, and a moist shady place the best to keep them in for a few days afterwards. Anything that is somewhat tender had better be housed before the cold nights come. Some things are checked without actual frost.

COMMUNICATIONS.

RHYNCHOSPERMUM JASMINOIDES.

BY MR. C. E. PARNELL.

In the GARDENER'S MONTHLY for April, 1881, page 110, Miss M. W. inquires if the Rhynchospermum jasminoides can be successfully grown as a house plant? To this query I regret to have to answer No.

The Rhynchospermum, or Trachelospermum jasminoides of some botanists, is a beautiful evergreen greenhouse climber, when well-grown often exceeds twenty-five feet in length, with dark green leaves, producing its jasmine-like, pure white flowers in clusters during the spring months in the greatest profusion. When in full blossom the flowers are so abundantly produced as to almost cover the entire plant, and what is more, the flowers continue to be produced in succession for a period of at least two months. On this account it is a very desirable plant for florists, as the flowers are much used by bouquet makers.

It is a plant of comparatively easy culture, requiring to be planted out in a well drained border in a compost composed of two-thirds well-rotted sod and a little more than one-third well-rotted manure or leaf mould, in which a quantity of broken charcoal has been mixed. Do not allow it to become very dry at its roots during the winter season; but care should also be taken that the soil does not become too wet, as in this event the roots are liable to rot. Dur-

ing its season of growth, and also during the summer season, water freely and syringe at least every other evening. As the Rhynchospermum is unfortunately rather subject to the scale and mealy bug, a thorough washing of whale oil soap and water should be given it at least once a year.

I do not think that Miss M. W. would be pleased with the Rhynchospermum as a window plant, and would not recommend it for that purpose; but in the event of her having a plant I advise her to shift it into a pot two sizes larger than the one it now occupies, and to repeat this process every spring after the plant has ceased flowering. When the plant becomes so large that it cannot be conveniently handled, it should be planted out in the greenhouse. If grown in a pot it should be plunged in a partially shaded situation during the summer season. When grown in a pot it produces a few flowers yearly, but they are not to be compared in size and quantity to those produced on a plant that has been grown in a well prepared border. It can be grown in a greenhouse, and a temperature of from 45° to 55° will answer very well; but if it is wanted to flower early in the season it must be given more heat.

In the MONTHLY, some time ago, I noticed the fact that it had ripened seed in England. Its fruiting is a common occurrence here. I have two plants, each of them being over twenty-five feet in length, and I notice that seed-pods are produced on them occasionally.

MILDEW.

BY E. C. JELLETT, GERMANTOWN, PHILA.

Of the many different species of parasites classified under the misapplied name of mildew, it is purposed to speak of only one—the Sphærotheca pannosa, or rose-blight; that variety found mostly on plants of the rose family. The appearance of mildew to even the most careful observer is something which is extremely mystifying, and all conclusions arrived at pertaining to its solution have been of the most dissatisfactory and perplexing character. As the subject is one of importance, it is worthy the attention of lovers of botany generally.

It is a prevalent belief among many students of fungology and vegetable physiology that a plant can be attacked by mildew only when in a weakened condition. While it is true that a plant is most susceptible to the attack of mildew while in the condition named, it is also true that there are a number of other causes, physical or otherwise, which will affect plants growing under the most favorable circumstances. The question of draught so strongly urged by all gardeners, although to some degree exaggerated, is without doubt one of the most important points under consideration. On this subject the important fact must first be noted that the exercise of every function is restricted to certain definite limits of temperature, within which alone it can take place: all functions are brought into play only when the temperature of the plant, or the particular part of a plant, rises to a certain height above the freezing point of the sap, and cease when a certain maximum of temperature is attained, which can apparently never be permanently higher that 122° F. Hence the life of a plant—the course of its vital processes—appears to be confined in general within the limits of 32° and 122° F. In the growing of plants careful attention should be given that an evenness of temperature be maintained. Plants that are grown at a temperature of 65° should not under any circumstances be allowed to go 20° or 30° higher, as it could not but have a dilibating or exhausting effect upon the plant; and if, while in this condition, draughts of air should be allowed upon them mildew would without doubt make its appearance. The injury resulting from too high or too low a temperature may under certain circumstances be indirect and slow in its manifestation. This will be the case when a particular function is too highly excited or too much depressed, and thus the harmonious co-operation of the various vital processes is disturbed. Thus growth may be so excited by too high a temperature that assimilation, especially when the light is deficient, is not sufficient to supply the necessary formative material, and the transpiration of the leaves may in addition be so much increased that the activity of the roots is insufficient to replace the loss. On the other hand, too low a ground temperature may so depress the activity of the roots that even small losses by transpiration from the leaves can no longer be replaced. The syringing and watering of roses while the house is at its highest temperature, has a very deteriorating effect upon the plants, especially when the water is at its natural temperature; the atmosphere of the house when syringed, will, from observation, be found 10° to 12° lower. It, therefore, will be seen (apart from the injury

to the roots) that it could not but have the effect of chilling the plants; and repeated waterings under the same conditions would put the plant in a condition favorable to the appearance of mildew. Roses should never be watered so late in the evening that they will remain wet till the morning, and they should never be watered in the heat of the day, for two reasons—the weakening effect upon the plants, and the injury resulting from the condensation of the heat rays of the sun by drops of water resting upon the leaf. The drops under such circumstances being usually globular, the focus of the concentrated rays will be found at the surface of the leaf, and the temperature of that particular spot will consequently be increased beyond the higher limit of growth. This condition exists for a short time it is true, but probably long enough for the rapidly growing mycelium to effect an entrance to the cellular tissue, and secure a firm and fatal footing there. This cause is more hypothetical than the other cited, but like the other mentioned, might be the subject of some interesting experiments to corroborate it. Over-much dampness through imperfect drainage should also deserve attention. In the preparation of rose beds drainage is fully as important as the soil. The construction of houses should also be carefully attended to; the water from gutters of houses that leak will soon spoil the best system of drainage, and plants in the vicinity of such leaks are always in a mildewed condition. Many writers urge the injury resulting from excessive moisture, and refer fungus growth back to this as the main cause, but it does not occur to them that plants may grow and mature in water containing all the elements of plant food, and if the temperature of the water be maintained fungus growth will not appear. The cause, therefore, in this case is not the presence of water, but the loss of heat, due to the evaporation of water. This will be observed especially after rain-storms or continued damp weather during that part of the year in which the houses are without artificial heat, for in such cases mildew always makes its appearance. This could, however, be remedied by attention to the causes before stated, namely, by thorough drainage, and by the maintainance of an evenness of temperature. The condition of the soil also has a strong influence on the condition of the plant. A plant that from the exhausted condition of the soil cannot be kept in a growing condition must from necessity go backward. It will be observed that it is always the weakest plants, and the weakest parts of a plant that are first affected. The cure of the disease mentioned will be found in attention to the physical condition of the plant, which condition will vary in localities. When mildew does make its appearance they should be dusted with sulphur at once. While the beneficial effects of sulphur is greatly over-estimated, it is without doubt of some benefit, but its chief value lies in its preventative rather than its curative properties. S. Reynolds Hole, an English authority upon the rose, recommends the use of soot for mildew; he, however, neglects to mention the kind of soot. Having tested soot from the anthracite coal to a slight degree, it proved satisfactory, but I have not tested it sufficiently to testify to its continued good results. Its use, however, is objectionable while the plants are in a flowering condition, on account of the disfigurement caused to the buds.

The question: Is mildew a permanent injury to the leaf? is one in which there is some difference of opinion. While a plant may overcome a slight attack of mildew, the injury is without doubt permanent in its character when the leaf curls. This happens from the portion of the leaf on which the mildew is situated being to all purposes dead, the remaining part of the leaf growing causes the leaf to curl. When the plant is in this condition its only help is a new growth, of leaves, and the removal of the causes favorable to the production of mildew. The secret of success in the matter of mildew is the same as that with other varieties of plants, that is, a study of the locality and attention to the physical conditions of the plant. Different localities possess different varieties of temperature, and consequently different modes of treatment The mysteries of plant growing cannot be compassed by books. There is no "royal road" in this respect any more than there is in any other. Success comes only by practical observation.

AMARYLLIS SPECIOSA.

BY MISS A. G.

An inquirer asks about the treatment of Amaryllis speciosa. This Amaryllis, if rightly named (and so many are not), is a fall or winter-blooming variety—those which bloom in summer, fall, and frequently towards Christmas time. Many of these remain apparently strong and healthy for years without blooming. We knew a lady, who, after having an A. speciosa under

cultivation for several years without bloom, tried with success the following treatment:

In the spring, about the time house plants are removed to the garden, the A. speciosa was taken from the pot, all earth shaken from the roots, then again potted in very rich sandy earth. All offsets were removed. It was watered freely once, then at long intervals for two or three weeks, when the pot was laid on the side, under the partial shade of an arbor. Here it remained dry until about the middle of September, when it was set upright and watered. Very soon after it was placed in a sunny window to bloom, which it did in such fine fashion as to delight its owner. She continued this treatment for other seasons with unfailing success.

The A. speciosa belongs to what may be called the evergreen varieties; for if cultivation is continued throughout the year, they will start new growth about four times a year, and it is possible they might bloom as often if the ground was made rich enough by additional nourishment and sufficient heat was kept up; with a sunny exposure. They will, however, bear much drying off, as much as eight months, with the bulb part of the time out of the earth. They are, with ordinary culture, slow to bloom, and to have the earth full of roots seems to be the easiest mode of forcing them to bloom. They are strong, vigorous growers, but are often attacked by a minute insect, which harbors on the under-side of the leaf and produces a red tinge, which comes in spots, but gradually extends over the leaf, till it decays. This little pest (not discernible without a microscope) can be exterminated by washing the leaves once a week with a sponge.

The A. Tettuii, which is of the richest dark tints of scarlet, is another handsome fall-blooming kind, and is more worthy of culture than any I have seen. It is said to have been taken to Germany, from Mexico, by the Maximilian, whose life there as Emperor was almost as brief as the bloom of this royal plant.

Another variety, having an immense bulb and a dark flower of like proportions, is a curiosity, and in some positions would have a stately effect, but is hardly fit for house culture.

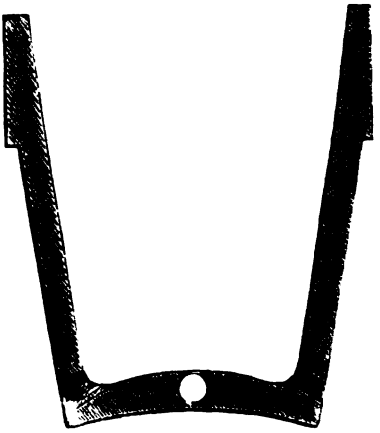
The Amaryllis Atamasco, or Fairy Lily, can be treated exactly as a gladiolus is, if desired, and makes a lovely border plant, as it throws up flowers at intervals all summer. They are also very pretty placed in an eight-inch pot (eight or ten of them) and watered freely. I have known one pot of these to produce fifty flowers during the summer. The Zephyranthus candida is almost as pretty, treated in the same way. This kind cannot be dried off without danger of losing the bulbs. A lovely rose-colored variety of the Zephyranthus (or Fairy Lily) which fades slightly after opening the flower, I am not now sure of as to name, since I have learned that the Atamosco is white, or nearly so. It may be Z. rosea. The Z. candida can be distinguished by its round fleshy leaves, which stand upright. There are also two yellow or orange varieties. I have seen but one, however.

The Atamsco is a native of the Southern portion of the United States. The Z. candida grows by the rivers of South America.

I may add without detriment to the fall-blooming Amaryllis, that those which bloom in or near the Spring have a greater variety of color, and, to my mind, are the most beautiful. Most of these can be cultivated in the garden during summer, re-potted and rested during the fall and half of December, and then come into bloom from January on to April.

EDITORIAL NOTES.

THE WHILDIN FLOWER-POT.—Everybody knows that the hole at the bottom of a flower-pot is to



SECTIONAL VIEW.

let the water out. Plants need watery air,—but water is only for aquatics. But in ordinary flower-pots, after the hole is made, the pot is set on a smooth board, or other hard flat surface, and there might as well be no hole in the pot so far as letting the water out is concerned. The

Whildin pot remedies this by three small holes at the sides. There is the additional advantage that worms cannot get in from the bottom, as they usually shelter themselves under the bottom of the pot. The only objection we can find is that the holes are too small, and will be liable to get choked. They should be as large on the sides as they usually are on the bottom,

THE WHILDIN FLOWER-POT.

or at least nearly so. Another great advance in pot manufacture is the shoulder, though this has been noted before in our magazine. The great "mortality" among pots is in the summer season. In the usual way they wedge into one another, and, forcing outwardly, large numbers are cracked and broken by the wedging, while lying in long rows during the useless season. The shoulder prevents wedgings, and this is an immense benefit.

SHADING FOR HOUSES.—Properly-constructed and serviceable blinds are expensive, and exterior contrivances of this kind are of little value unless they can be secured from damage from wind, &c. The old practice of whitewashing a roof is useful, but it has a glaring and ghastly appearance under bright sunlight; and it is in violent contrast with the foliage about it. For something like 150 superficial feet of glass a good mixture can be made of ½ lb. of Brunswick Green and 3 lb. of size; the latter should be boiled in order to melt it, then the two should be mixed together, and diluted when wanted. If this be laid on carefully in spring, it will last all through the summer. It is particularly recommended for a cool-house, or for a fernery. —*D. in London Garden.*

RED AND WHITE OLEANDER.—Mr. Jacob Linxwieller, of Hamilton County, Ohio, has a large oleander with red and white flowers on the same plant,—the two kinds having been grafted on one stock.

CEREUS GRANDIFLORUS.—This with us is the "Night Blooming Cereus." In Brazil, according to Dr. Ernst, in his recent work, "*Las Familias mas importantes del Reino Vegetal*," it is known as the "Night Queen."

GREENHOUSES OF W. B. REED AT CHAMBERSBURG, PA.—A plant of Mareschal Niel rose in these greenhouses covers 360 square feet. Last season 8,007 rose buds were cut from it. As in many establishments just now the raising of young roses is a specialty of the business.

SCRAPS AND QUERIES.

RUELLIA DEVASIANA.—"P." wants to know what is Ruellia devasiana?

STENOCARPUS CUNNINGHAMII.—"C E. P." wants to know whether it is a rare occurrence for Stenocarpus Cunninghamii to produce seed. My plant has a quantity of seed pods on it.

CALONYCTION GRANDIFLORA.—"C. E. P." says "Will some of the readers of the MONTHLY be so good as to favor me with a description of a vine named Calonyction grandiflora."

[*Calonyction* is an old abandoned genus. They are properly Ipomœa, or, as one might say, belong to the "Morning Glory" family.

We have not seen Ipomœa grandiflora; if any one knows aught of its merits for floriculture we should be glad to have the information requested.—Ed. G. M.]

NEW COLEUS.—"J. R. H.," Richmond, Virginia, says:—"You will probably recollect me on new coleus in a few numbers back, in which I spoke of some improved ones I had raised. I mailed you on the 6th of this month a few specimen leaves. Will like to hear through the MONTHLY if you like them, and if much improvement on the late class of new coleus."

[These leaves were as beautiful as any coleus we ever saw. Just how they will suit for bedding purposes is the test of the chief value of a coleus at the present time. So far as the introductions of the past are concerned, few yet equal the oldest of all, Verschafeltii.—Ed. G. M.]

FRUIT AND VEGETABLE GARDENING.

SEASONABLE HINTS.

Among the higher mountains of northeast Pennsylvania this season the writer noticed plums hanging from the trees in immense profusion. Inquiring if this was always the case, it appeared not; that "if a rain came about the time the fruit was stoning they would all rot." Most of the plums had curculio marks, but were ripening for all. It is possibly from some such circumstances that we often hear of successful remedies against curculio. Something is done and fruit follows, and the credit given to the application. We have given this matter some thought, and feel that so far there is no effectual remedy but shaking them off and destroying them. It does not take near as long to do this as it would seem, where a man or two is regularly employed. In the writer's case his plum orchard was smoked with burning coal tar every evening except Sunday for four weeks from the time the petals fell. Nine-tenths of the plums have been stung and have rotted for all. Still it might have been supposed that the tar smoke saved the one-tenth, only for the fact that in a part of the orchard where a solitary tree grew, and was not smoked, there is about the same proportion of perfect plums. This is the third year of tar smoke, with the same results. It would have taken no longer to shake the insects on sheets and destroy them. Next year shaking will be in order. It is often the same with other things. We have seen people fuss about preparing some druggists mixture for destroying the caterpillars on a couple of dozen currant bushes when the whole brood might be shook off with a stick and crushed out in a few minutes.

Persons often wonder what is the best kind of fruits to plant. The best way to learn is to visit one's neighbors at this season and take notes. No editor can tell what should be planted in a far away district. Some things do so much better in one district than another, and then there may be a particular demand for some special kinds in some local market. All these things, when the planting is to be for profit, are of great consequence. When the planting is for family use only, it is still more difficult to advise what kinds to choose. But there is this always to be remembered that if a tree does not produce just what we like, it can be top-grafted. In this part of the world there has been an enormous crop of pears this year. Pears do not appear to have become a very profitable fruit to grow for market as a general thing, though some few have made money on them. But for family use it is one of the most reliable kinds to have. The fire-blight is the only severe enemy, but, though we have seen some trees get the disease even when washed, we have little doubt that if pear trees are annually washed with a mixture of sulphur and lime as far up the main branches as the long-handled brush will reach, the disease will not be as frequent or as hard as in unwashed trees. Clay, coal ashes or soot may be mixed with the wash to deaden its glaring whiteness.

In the vegetable garden we may note that the asparagus beetle is spreading rapidly over the country, and will be found a terrible pest to the grower. In beds of young plants—nursery plants—Paris green will be effective; but this must not be used on plants in kitchen use. Fuller is credited with saying that powdered quicklime will do for them. It is a pest that will require close attention.

In preparing for planting trees, the soil should be stirred up at least two feet in depth. Of course, the trees should be planted in the holes only so deep as they stood in the ground before, rather higher, if anything, as the soil will settle. Good common soil may be filled in the holes if the natural soil is very bad; but anything applied as manure may be stirred in the surface-soil after the trees are planted.

Some talk, in preparing an orchard, about making "one large hole" for all the trees. This seems witty, but it is an expense which very few orchards will ever repay. Water is likely to stand in the deep holes we recommend: but in such cases we would, rather than go to the expense of subsoiling the whole orchard or underdraining, plant higher than they grew before—higher than the surrounding soil, mounding the earth, as it were, above the level. No

water will ever stand here. And the money usually spent on making "one big hole" of the "whole" orchard, or in underdraining, we would spend in annually surface-dressing the ground.

Another year of bountiful crops has rewarded the efforts of the fruit grower, and hundreds will plant who have never thought of it before. On the other hand many who have grown for market are discouraged by the very abundance. The enormous quantities produced have so cheapened them, that hundreds have been almost ruined.

The public was not prepared for such great abundance. Now just as people are getting to use fruit freely, and making it by habit a necessary article of food, growers will go out of the field, and in consequence, even with good crops another year, the demand will probably exceed the supply. Thus these little waves of success ebb and flow; all we can do is to go on with our hints for the success of fruit growing, knowing that these little incidentals will regulate themselves.

The planting of the pear, apple, plum and cherry will soon be in season; peaches, apricots and grape vines, except south of the Potomac being for the most part left till spring. Choose a dry piece of ground. If not naturally dry, it is best to throw the earth up into banks or ridges and plant on them. This is cheaper and better than underdraining. In planting, if the roots appear deep, cut away some of the deeper ones, and shorten some of the top of the tree at the same time. This is particularly true of dwarf pears which are often grafted on rather long quince stocks. Cut all away of the quince root but about six inches, and if this should be found to leave few roots, cut away the top correspondingly. Most of the failures with dwarf pears come from bad quince roots, so deep in the ground the lower parts decay, and this decay gradually communicates upwards until the whole system becomes diseased. The more tenacious the subsoil the more necessary is it to attend to this matter. We spoke of pruning in proportion to injury. It will be found that all trees are a little injured by removal, therefore all trees should be a little pruned at transplanting.

The great trouble with most celery growers is that the soil is not rich enough or has not water enough. Good celery needs an abundance of these good things.

COMMUNICATIONS.

NAME AND ORIGIN OF THE BIDWELL STRAWBERRY.

BY T. T. LYON, SOUTH HAVEN, MICH.

On page 240, of the current volume of the MONTHLY, the editor supposes that the name should be spelled "Bidwill." In this he is certainly in error.

Since this fruit has come to attract so much notice, I venture to offer for your columns some account of its origin, and of the manner in which it acquired its name.

Mr. B. Hathaway, long known in Michigan as a nurseryman and orchardist, has been for many years engaged in the process of raising strawberries from the seed. Among the many novelties produced, a few only have been thought worthy of names, and among these we may mention Pomona and Michigan, the latter having been for a time somewhat noted.

Still more recently a number of seedlings were originated, by crossing a pistillate seedling of his from the old Virginia Scarlet with pollen from some of our more modern varieties. While these were in fruit (as I understand for the first time) they attracted the attention of Mr. Bidwell, then of this place (South Haven), who purchased one plant each, of ten varieties, Mr. Hathaway reserving the right to retain plants for his own use. One of these was the variety in question.

Mr. Bidwell transferred the purchased plants to this place, where they were allowed to pass as his own originations. This variety was exhibited by him at the June meeting of the Michigan State Pomological Society, held at this place, in 1877, and was by him named "Centennial."

One of the examining committee on that occasion, who had received plants from Mr. Hathaway for trial, recognized this as one of them, and so stated to the Society. But the matter was not followed up at the time, and the variety was locally disseminated under that name.

The South Haven Pomological Society subsequently, under the apprehension that Mr. B. was the actual originator, re-christened it "Bidwell," to avoid complication with an earlier origination so named.

It was only after the variety began to attract attention abroad that upon the appeal of Mr. Charles Downing and E. P. Roe, I applied to Mr. Hathaway and received from him the history of its origin and transfer to Mr. B., as above stated.

EDITORIAL NOTES.

COOK'S TREE PROTECTOR.—The majority of insects which annoy the horticulturist are born on the foliage which they destroy. In New England some seem to hatch in the ground and ascend by the trunk to the foliage. Where these exist, Cook's tree protector—which is a contrivance encircling the trunk and holding oil—is a good thing.

ITALIAN BROCCOLI.—The ordinary Broccoli grows in heads like cauliflower. The Italians have produced a class they call sprouting Broccoli, which has small heads on long succulent arms, and which are produced in great numbers from one plant. It is said to be a delicious vegetable.

SHADE FOR RASPBERRIES.—At the July meeting of the Montgomery County (Ohio) Horticultural Society one of the most experienced fruit growers of Ohio, President Ohmer, advocated planting berries in old orchards, where partial shade and protection is afforded.

AN APPLE TREE ON A PLUM STOCK.—An intelligent and well-known contributor to the London *Journal of Horticulture*, Mr. G. Abbey, has examined a supposed successful case and seems to believe that it has been done. He can see where the grafting was done, but some room for doubt is furnished by his statement that the plum stock "has assumed the character of the bark and wood of the apple tree." It is easier to believe that the apple scion was originally set into an apple stock, than that the stem of a plum became transformed into an apple tree, for this must be an impossibility, or all we know of cell growth is wrong.

AMERICAN APPLES IN LONDON.—The *Gardener's Magazine* says: "The importation of American apples in the season of 1880–81 amounted to no less than 1,348,806 barrels. Of these vast quantities 599,200 barrels were shipped at New York, and 510,300 barrels at Boston. In addition to the supplies from the United States we received large consignments regularly almost throughout the season from Canada."

PROFITS OF STRAWBERRIES.—Mr. N. Ohmer, of Dayton, O., has given up strawberry growing for market, they proving less profitable than raspberries.

MONSON'S PERFECTION LETTUCE is praised by Dr. Warder.

SCRAPS AND QUERIES.

DISHONEST AGENTS.—A lady from a Western city writes: "This spring a Mr. ———, agent of the ——— Nurseries, was in our neighborhood soliciting orders for fruit trees, for which he asked prices very much above what we had ever given, but he claimed, among other things, that their pear trees were grafted on such stock (fringe tree, etc., I believe) that they would not be subject to the blight. That he could give me a woolly plum that the curculio would not touch—the plum to be of superior kind. As we are losing our fruit from blight, curculio, etc., we should be glad to pay three times the ordinary price to be free from these garden pests. But for some reason or other I doubted if there were any such thing as the ——— Nurseries. If it is a fraud will you be good enough to let me know?"

We have cut out the name and location of the firm, but may say that it is one of the most respectable firms of the United States. We thought proper to send the letter to the firm and have the following reply:

"I am very much obliged for your letter of the 20th inst., covering one from a correspondent of yours. The man complained of was not our agent, but I think he did sell for one of our customers—a dealer—with whom we had a contract to supply trees. It seems to be impossible to control these men, for we hear constant complaints of misrepresentations which they put forth to enable them to secure orders. We sell our trees in good faith—often by contract in advance—and I am sure I do not know any practical rule for distinguishing between an honest and dishonest "dealer." I enclose back the letter as requested."

The correspondence shows the difficulty in which the whole subject is surrounded. The only deduction we can draw from it is that wherever practicable it is best to order direct from the nursery in preference to buying from the canvasser or dealer, unless such canvasser or dealer is known to the purchaser. As we have before stated, there is always risk in buying from a person or persons unknown. There is quite enough risk even in our dealings with those known to us, either personally or by reputation, without adding this unknown quantity. In cases where no responsible nursery is known to the buyer, he has to buy of dealers unknown to him, and the only advice we can give in such

cases is to remember that he cannot see what he is buying, and that he has to take the word of a total stranger who may be strictly truthful; but who, on the other hand, may possibly lean a little from the perpendicular in order to make a sale.

MUSHROOM CULTURE.—"Novice," Philadelphia, says: "Moved by the papers in the MONTHLY, I experimented with mushroom culture. To-day I have cut my first fifty, but they are all small, running from the size of a quarter to half a dollar, and about as thin. Can any one with experience in this country tell me if the first pickings usually come small this way, and why? I hope I shall have larger ones after a time."

PHILADELPHIA QUEEN APPLE.—L. says: "What is the apple grown in your vicinity as Philadelphia Queen? I have one fruiting for the last year and this, but I see no difference between it and Red Astrachan."

[The only Queen known about Philadelphia is the Summer Queen. This is much lighter in color than the Red Astrachan, and ripens a little later; and, altogether, not quite so valuable an apple.—Ed. G. M.]

PALM OIL SOAP.—Mr. Ed. S. Morris places on our table some samples of palm oil soap, made, as we understand, in Philadelphia, from the crude oil of Elæis guineensis, sent from the Colony of Liberia. We placed the soap in the hands of an expert in these matters, who reports it of singular excellence, and also remarks that it is a "superior teeth cleaner." Mr. Morris has earned a world-wide reputation as the discoverer and introducer of the Liberian coffee, and we wish him every success in his new palm oil soap enterprise.

NATURAL HISTORY AND SCIENCE.

COMMUNICATIONS.

WILL RED CLOVER NOT VISITED BY BEES PRODUCE SEEDS?

BY PROF. W. J. BEAL, LANSING, MICH.

For three years some experiments have been made to test this question. Three years ago some young heads of red clover were tied up in cloth sacks before any flowers had opened. A similar number of the same age were marked. The exact numbers were lost, but those heads which were kept covered produced about two-thirds as many seeds as those not covered. Very small insects may have gone into the flowers, but no bees could reach them. In 1878, eight heads of red clover of the same age were marked. Four of them were covered with muslin bags, till all were dead ripe; the rest were left uncovered. The heads covered yielded respectively, 18, 30, 38 and 41 seeds; those uncovered yielded 46, 54, 43, 57. The total seeds from covered heads, 127; from uncovered, 200. In a similar manner, during 1879, 31 young heads of the first crop of red clover were covered before any flowers opened. Only one produced any seeds and that bore seven. At the same time 31 other young heads were marked for comparison, and yielded respectively the following number of seeds: 11, 12, 2, 35, 40, 21, 3, 1, 22, 15, 15, 20, 16, 4, 29, 3, 25, 8, 15, 22, 24, 28, 41, 10, 22, 13, 18, 18, 10, 12, 10, an average of nearly 17 seeds per head.

On August 9th, 9 heads were covered before any flowers had opened. When ripe they yielded seeds as follows, 36, 51, 45, 59, 15, 26, 47, 31, 28; an average of about 37½ seeds to the head. Eleven heads which were covered yielded no seeds. The experiments of each year were made by three different trusty students. In nearly every case, the heads which were covered soon fell to the ground where they remained till ripe. This may have interfered more or less with the production of seeds.

GORDONIA PUBESCENS.

BY H. W. RAVENEL, AIKEN, S. C.

In your notice of Gordonia pubescens in August number, is this paragraph: "We believe this plant has never been found since its original discovery by Wm. Bartram."

The tree was first discovered at old Fort Bar-

rington on the Altamaha, some 16 miles from Darien, about the year 1765, by John Bartram, whilst on his travels through the Carolinas and Florida. In April, 1773, Wm. Bartram, his son, started from Philadelphia on a tour through the same region, in the interest of Dr. Fothergill of London. He proceeded South leisurely, and sometime in the summer, reached Fort Barrington. He says:

"I set off early in the morning (from Darien) for the Indian trading-house on the river St. Mary, and took the road up the northeast side of the Altamaha to Fort Barrington. I passed through a well inhabited district, mostly rice plantations on the waters of Cat Head Creek, a branch of the Altamaha. On drawing near the Fort, I was delighted at the appearance of two beautiful shrubs in all their blooming graces. One of them appeared to be a species of Gordonia, but the flowers are larger and more fragrant than those of Gordonia lasianthus."

In 1778, at the close of his travels, (which extended as far West as the Mississippi river,) he returned to Fort Barrington, to collect up seeds and plants which he had previously seen. He says: "I found two or three acres with this tree;" and that he had seen it some twelve years before when he traveled with his father. It was probably in sight from the road, and having seen it before he knew just where to look for it.

In Darlington's "Memorials of Bartram and Marshall," page 568, is a letter from Dr. Moses Marshall (nephew of Humphrey Marshall) to Sir Joseph Banks, dated Philadelphia, October 1790, in which he says: "In May last I set out on a botanic tour, etc., etc. Then crossing the high and great chain of mountains, came upon the head waters of Santee in South Carolina, thence by Ninety-six to Augusta and to Savannah town, and continuing southwest to the Altamaha in Georgia. I here found the Franklinia or Gordonia sessiles, better called."

This, as far as I can learn, is the last time on record of its having been seen in the uncultivated state by any botanist. Seeds were collected by the Bartrams and distributed in this country and in Europe, and the trees from these seeds are all that we have left of the original discovery.

In Torry & Gray's *North American Flora*, Florida is quoted as a habitat on the authority of Hevlarien of Schweinitz. Whether the locality is well authenticated or not, I have no means of knowing.

I made a visit in March last to the Altamaha in search of this tree, but failed to find it. It was an unfavorable season of the year for the search for an unknown tree, as the leaves (it is deciduous and not evergreen like its congener G. lasianthus) had not yet expanded, and the old capsules had fallen to the ground—so that, without leaf, flower, or capsule, there was really no means of identifying it, even if it was there, among the many other deciduous trees. I travelled the old road from Darien to Fort Barrington, and passed, as Wm. Bartram states, the rice plantations on the waters of Cat Head Creek. From inquiries among the people of the neighborhood, I learned that the same road exists from Darien to the Fort as it was one hundred years ago. After passing the rice fields on Cat Head Creek, the road runs through many miles of flat damp pine woods to within two or three miles of the Fort, where there is a succession of poor sand ridges up to the Fort. Among these sand hills are many narrow "pine land branches," with black peat soil—and occasionally "flats" of several acres in extent in the woods, where the common sedge grasses and some trees are seen. It is along these narrow pine land branches and the flats, that the tree is to be looked for. I saw Gordonia lasianthus, Pinckneya pubens, Cyrilla and one or two species of Nyssa here, with abundance of scarce Palmetto bordering the branches. A friend who accompanied me on the ride to the Fort, promised to look again later in the season. He went up in June and made thorough search along the branches and flats in the pine woods, but was unable to find it. We hope yet to be able to find it later in the season.

The Fort was built originally as one of the frontier outposts for the protection of the Oglethorpe colonists against the Indians and the Spaniards of Florida. The river here bluffs on the North side—and the river swamp is wholly on the South side. There is nothing more to mark the site of the old Fort but the ditch and embankment which surrounded it—and a small negro shanty in which the ferryman lives. It is still used as one of the river crossings of the Altamaha for that region of the country.

The rediscovery of this tree in its native wilds, and some knowledge of its geographical range is very desirable, not only in the interests of science on account of its extreme rarity and very circumscribed habitat, but also towards completing a perfect suit of wood specimens of the trees of the United States now under trial for their

economic value, by the Forestry Department of the tenth census—and also for the American Museum of Natural History in New York—for both of which my visit to the Altamaha was made in March. Should any of your readers know anything of it, they would confer a favor by communicating with me.

A FRENCH VIEW OF ENGLISH NAMES FOR PLANTS.

BY JEAN SISLEY, MONPLAISER, LYONS, FRANCE.

The following interesting view was contributed by Mr. Sisley to the London *Garden*.

Although I have pleaded several years ago in the French horticultural papers against vulgar names for plants, I have read with great attention what has been written on the subject of English names in *The Garden*, prepared to alter my mind if some serious arguments were brought forward. The best reason advanced, so far, is, that English is spoken nearly all over the globe. But, although this is correct, I do not think it should decide the case. Because till now, as I before wrote to you, I have, like many others, been puzzled in reading the English horticultural papers when a vulgar name appeared, which could not be found in any dictionary.

Supposing the promoters of English names to be right, there must of all necessity be a convention called to make a new dictionary, and all those who over Europe have studied the English language, will have to begin a new study.

But, I invite them to give first an idea of the mode they intend to adopt for changing the Latin names by informing the public which names they propose to put instead of Aucuba, Camellia, Fuchsia, Hortensia, Dahlia, etc.; and then, if their idea is adopted what will be the logical consequence? All nations will imitate the English, and plants will have the advantage of possessing in Europe alone fourteen different names and then an academician will have the chance of making a fortune by publishing a new horticultural dictionary in fourteen languages.

But, seriously, is it not more logical, and particularly more humanitarian, to have names which are understood everywhere?

Let us therefore plead in the domain of Flora for what unites all men and not for what divides. Besides, all sciences, everywhere, have adopted Latin; why not use it in horticulture?

THE SNOW PLANT OF THE SIERRA NEVADA—SARCODES SANGUINEA.

This pretty scarlet-flowered root parasite is called Snow Plant, because it was once thought that it bloomed only amidst ice and snow. This is now known to be fallacious. Snow-slides sometimes occur, and it may then be found among snow. Since it was first found on the Fremont exploring expedition, and named and described by Torrey, little more has been learned of it. The following contribution is condensed from some verbal remarks before the Philadelphia Academy of Natural Sciences:

Mr. Thomas Meehan referred to discussions among members at former meetings, as to the true character of parasitic plants. There were believed to be in the main of two classes, one which might be represented by the common Mistletoe, with woody stems continuing from year to year, the other like the Arceuthobium or pine parasite, which died to the surface of the wood, but continued to grow up from the same spot every year—a sort of parasitic herbaceous plant. It was a question how far root parasites partook of these several characters. There were some plants as Castilleja and Comandra, which might be said to be in a transition state between an ordinary terrestrial plant and a parasite. Usually they were as other plants, but some of the roots would attach themselves to other roots, and form as perfect a union as genuine parasites, and by the decline in vigor of the victim root beyond the point of union, evidently showed they were really parasitic, deriving nourishment from the attachments. Aphyllon uniflora germinated on the annual fibrous roots of Asters and Solidagos, as had been clearly traced, and perhaps on other plants, and after germination formed a mass of innumerable coral-like spongelets, drawing moisture and perhaps some other elements of nutrition from the surrounding medium. Epiphegus Virginiana behaved precisely in the same way. Monotropa and others had also this mass of pseudo-roots or spongelets, and had been supposed to germinate and live wholly on half decayed vegetation, but he believed from analogy they would be found as in Epiphegus and others, to germinate at first on living roots. Conopholis was the only root parasite he had found any reason for believing to be a perennial. This had been found attached to quite large roots, evidently coming up from the same spot from year to year as Arceuthobium does.

Having correspondents in regions where grows the beautiful Snow Plant of the Sierras—Sarcodes sanguinea—about which nothing but its aerial character has been so far known, he had set them to watching for him their appearance and final end. The places where they grew were carefully marked, and with the following results: Mr. John M. Hutchings, of Yosemite, found the bottom of the old plants ten to fourteen inches below the surface, with not the slightest signs of attachment anywhere. To him it appeared no more than an "ordinary annual plant of great beauty." Of course an ordinary annual growing from seed could not push through the ground at so great a depth. The vital powers spent in overcoming so heavy an obstruction would be exhausted long before the growing point pushed through a foot of soil to the surface, as observing seed growers of experience would testify. Only a parasite, or a bud having an unlimited supply of food to draw on, could accomplish this feat. But the matter was settled by another observer, Mrs. Ross Lewers, of Washoe Valley, Nevada, who together with her observations had sent the dead spongy mass from the last year's plants, which we exhibited, and these were found to have a slender pine root through the mass, around which the spongy mass had grown, and as it was dead, there was little doubt that it had been the matrix from which the seed had made its original start, and which it had killed in the end. The dead spongy mass of pseudo-roots was larger than he had seen in any other species of root parasite.

Altogether it might be said that Sarcodes sanguinea was an annual, germinating on small pine roots, and subsequently obtaining subsistence from the earth, as Aphyllon and Epiphegus do.

EDITORIAL NOTES.

COMMON NAMES.—As already noted, the chief objection to common names comes from the fact that there is no recognized authority in naming them. Anybody may give the name he chooses, and scores of people do so choose until nobody knows what plant the other is talking about. Here is a correspondent, B. M. & Co., Philadelphia, who writes to us to know what is the "Sun-dial plant?" How can "we" or any other body tell him? As to the confusion, take for instance the common "Fennel-flower," which is probably the "commonest" name for Nigella damascena. There are plenty of people who would not know it as "Fennel-flower," but as "Love in a mist." Others will only know it as "Love in a puzzle," or more roughly as "Devil in a bush." Others, however, will not know it by any of these. We shall have to say "Bishop's wort" to one set; "Saint Catharine's flower" to another; to another "Venus' Hair;" "Spider's Claw" to another set; "Blue Beard" again to another. All these names have appeared in print in connection with this one plant. How many more are yet in the unwritten language of everyday life we do not know, but there is enough here in the way of the use of common names until they really become common.

FLOWERS POISONING BEES.—One season the writer of this noted innumerable humble-bees dead under the flowers of a Wistaria, and concluded they had been poisoned by the flowers of this plant; but the next and succeeding years he had seen bees in thousands collecting honey and pollen from the Wistaria without any injury whatever. He thought of this on reading the following, credited to the British *Bee Journal*:—

"Last summer I had a large quantity of Foxglove plants, cultivated varieties, and very beautiful in bloom, at the same time a quantity of Canterbury Bells growing near them, and in flower. I was much struck to find that a great number of the working bees were lying dead in the beds of the Canterbury Bell. Day after day I watched with much interest the movements of the bees, and found that after they had fed for some time on the flowers of the Foxglove they became stupid, and after leaving the Foxglove they went into the flowers of the Canterbury Bell, and, as a rule, died shortly after. Query—Did they die from the poison got in the Foxglove alone, or did it depend on their coming in contact with the flowers of the Canterbury Bell? I could not find any dead bees on any other plant or on the ground near by.—A. PATERSON, M. D."

The fact is bees are often found dead in numbers under plants. Instead of poison it is more likely natural death should be the verdict. Bees live but one season in any event, and some are dying all through the summer. It is more likely that a lot of bees, whose time has nearly come, get belated or overworked, and remaining in the flowers all night, meet with cold or dew, and die from old age or exhaustion.

INDIAN PITCHER PLANTS.—Our Sarracenias are objects of intelligent wonder with Europeans; but India and Australia have similar curiosities.

ne of which is represented here. This is a lepenthes, of which there are numerous species nd garden varieties. Their native country is ie more southern latitudes of India, and the lands in the Indian Ocean. In cultivation they ill only do well in warm houses. While our

NEPENTHES BICALCARATA.

itcher plants are strictly stemless plants, Nenthes ramble over bushes, and the pitchers re formed on the ends of long leaf stalks, as en in the representation here given. Like all itcher plants, water is distilled in the leafy essel, and insects are caught and drowned therein. Many good botanists believe that the pitchers were especially designed for the purpose of catching insects, and that the nitrogenous matter from the dead insects is absorbed to the nutrition of the plant. This may be so as to the main purpose, but no doubt much of the peculiarities are formed under the universal law of variety, and with little more object in view than mere distinguishing one kind from another. Thus, in this species are two horns, or sharp heels, that it would puzzle any guesser to show any use to the plant from them. It is from

these two points that the name is derived—bicalcarata. They are found to hybridize very freely one with another, and there are numerous garden varieties. Nepenthes bicalcarata, however, is a distinct species, one of the many introductions for which we are indebted to Messrs. Veitch & Sons, of London.

TRANSLATIONS.—People worry themselves sick over translations from the Greek, Latin or Hebrew, without stopping to reflect that it is next to impossible to render the correct meaning from one modern language to another. It is infinitely worse when we are translating the old ones. In France people are told that Americans send their fruits long distances to market in "ice wagons." This seems to be the idea which our term "refrigerating car" conveys to them. But it is not exactly what we mean. An "ice wagon" as we have it is not a "refrigerating car." And so it goes with all translations.

BEES AND CLOVER-SEED.—In 1875 the editor of this magazine read a paper before the meeting of the American Association at Detroit, in which he stated, Mr. Darwin says he "protected some from bees, and they bore no seeds; some exposed to bees perfected thousands. I am satisfied that in all cases I examined of flowers just before expanding, and before any insect had interfered with them, the stigma had received its own pollen. Mr. Darwin does not say how he protected his flowers. Nutrition is often interfered with by protection, and failure to seed follows. I endeavored to repeat the experiment of protection for this meeting. I covered a patch of clover with a sieve having one-eighth inch meshes. I think I may say every flower perfected seed." The paper evoked considerable adverse discussion, and especially this reference to Mr. Darwin's clover experiments. It became necessary for him to defend himself from the charge of seeking to discredit Mr. Darwin. Professor Beal was present, we believe, at that meeting, and though we do not remember that he took part in the discussion against the paper, we know that his views then were not in accord with the writer of the paper. It is therefore with satisfaction that we give in another column an account of some experiments by Prof. Beal on this very question, in a lecture delivered before some Farmers' institute last winter. We stand among Mr. Darwin's warmest admirers, but we wished to show that there were many reasons why clover did not seed aside from mere questions of pollenization, and that Mr. Darwin had been mistaken in supposing that protection or non-protection from insects were the only things to be considered in relation to this question. Mr. Darwin himself would be the last to suppose this was all, but he had evidently forgotten it here. Prof. Beal's figures now show, as our observations did, that clover will seed when protected from bees, and at the same time he shows by repeating the experiments with varying results, that there are other considerations besides pollenization which affect fertility, and these considerations no doubt had more to do with Mr. Darwin's failure than protection from insects had.

The writer introduces this here in no "I told you so" sort of spirit. But those who antagonized the Detroit paper have had abundant time to repeat for themselves the experiments made by the writer. One distinguished gentleman promised to do so and "report."

As six years have now elapsed, it seems but due to science that these experiments noted by Prof. Beal should be emphasized in connection with that which has passed.

ABIES CAROLINIENSIS.—A new hemlock spruce has been discovered in the Carolina mountains, and described under the above name by Dr. Engelmann in the *Botanical Gazette*. Mr. William Canby, who has been South this summer, has also collected specimens. It is remarkable that large trees like these should so long have escaped the many lynx eyed botanists who have been over the field.

SEEDS OF HORSE RADISH.—The Horse Radish seeds but rarely. The writer never saw any. Before us are samples so marked by a correspondent from Maine. Wood makes as a generic character, "seeds few." These had sixteen minute seeds in each small seed vessel, quite a large number for a plant of this order. We are much obliged by the opportunity of seeing them.

MAPLES IN ARIZONA.—Writing to the *Arizona Journal*, Mr. J. G. Lemmon says:—"But one botanical explorer has before reported maple trees from within the limits of Arizona; yet a fine grove of sugar maple, which may be distinct, is found in the deer park included by the higher peaks of the Catalinas. Also, on the sunny slopes is seen a new and beautiful cypress, detected also by Mr. Green on the White Mountains, northward, I believe. A sugar maple is

reported by the miners on the north slope of Des Cabazes, in the Chiricahua mountains, which is perhaps the same as this of the Catalina. The writer has arranged to have leaves and fruit forwarded to him soon, for determination and may then report. The maple trees in the Catalinas are some of them one and a half feet in diameter, and forty to fifty feet high; of dark, smooth bark, and long, slender limbs. The leaves and flowers were just expanding when we first came upon the trees, amidst the melting snow banks, on April 30th; but the trees had been tapped by two adventurous pioneers there, and we had a canteen of excellent sap and a fine article of syrup given us. This maple strongly resembles Acer grandidentatum found in Oregon, but if it proves to be that species it has made a wonderful skip over the States of California and Nevada, where it is unknown."

PINUS ARIZONICA.—Of this Mr. Lemmon, who has recently been exploring in Arizona, says:

"Among the remarkable varieties there is time to mention only one pine. In 1875 Dr. Rothrock, of the Wheeler survey, discovered on the Santa Rita mountains a pine tree having a strong resemblance to the common yellow pine of California (Pinus ponderosa), but having its leaves in fascicles of five each, instead of three each, the number in the typical species. Coupling this character with others, derived from the smallness of the cone, &c., Rothrock judged the two to be distinct and gave it the name of Pinus Arizonica, though admitting that his 'data was very meager' Last autumn Dr. Engelmann himself, with Prof. Sargent, visited the Santa Ritas, and both became satisfied that the pine was indeed distinct, and entitled to be ranked as a new species. Now, in the large inclosed forest of the Santa Catalina mountains, we find pine trees of the appearance and description given for the Pinus Arizonica, including the long, slender leaves in bundles of five; but unfortunately for the fate of the new species, some of the leaves are in fascicles of all numbers from two to seven. On examination of this forest for several days, every variety of character distinguishing this polymorphous species was noted; the same as in the Sierra of California, with the added features of many-leaved fascicles and very small cones; so we are compelled to believe that the so-called Pinus Arizonica is only a form, or rather a sport of the Pinus ponderosa, so variable in its forms in California as to have received there four or five names from the lumbermen, but all specifically connected by intermediate forms. Of course, we must not deny that the Pinus Arizonica may exist in the Santa Rita mountains, a range some fifty miles southward of the Santa Catalina; but certainly the presumption is against it, and the facts presented, we think, show the wonderful transformation powers of isolation and climatic conditions to which this species has been subjected for ages, almost rendering it a distinct species. Fascicles of these pine leaves of different numbers and various lengths have been sent, accompanied by the gist of the above notes to Dr. Engelmann, Prof. Sargent, Dr. Parry and to the California Academy of Sciences, from whom we may expect decisive reports."

PINUS REFLEXA.—Mr. Lemmon in a note to the *Arizona Journal* says: "This large and valuable pine tree, until lately was considered a variety of a certain white pine found on the Sierra Madre mountains, Mexico, but of late declared by the highest authority (Dr. Engelmann) to be a distinct species. This pine resembles the common sugar pine of California, but the cones are not half so long and, even when young, the scales are strongly reflected, suggesting the Doctor's new name for the species, "Pinus reflexa." It is frequently met with in the deer park referred to, also on a similar plateau on Mount Graham, and is reported also from several other ranges.

FOOD OF THE KING BIRD.—The general belief is that the king bird is wholly insectivorous; but we have lately seen the birds feeding ravenously on the berries of the Blue Dogwood—Cornus alternifolia. Every morning after sunrise the bush on our lawn is covered with them, making their morning meal on the fruit.

LITERATURE, TRAVELS AND PERSONAL NOTES.

COMMUNICATIONS.

NOTES AND QUERIES—No. 28.

BY JACQUES.

Gardening.—Of all the manual employments gardening is surely the most attractive. Take the cotton mill worker and compare his intellect with the gardener, to whom is ever recurring delights in observing and admiring the product of his head and hand. Byron considered himself a "peer among poets and a poet among

peers." So the lover of plants is a peer among workers and a worker above his peers.—*Selected.*

Rats.—"They do not die on the premises," is the recommendation given to a new rat poison. It makes the rats feel so bad that they go away and die at the house of a neighbor. There is nothing like it.—*N. O. Picayune.*

Australian Wool.—In 1788 there were twenty-nine sheep in Australia, as against sixty-two millions at the present time. This is progress indeed.

Teasel, Dipsacus fullonum is a biennial plant of the south of Europe, naturalized to some extent in this country. It is cultivated on account of its burrs or heads covered with hooked bracts, which are stronger and better on the cultivated plant. These heads are fastened to a revolving cylinder, and used by woolen manufacturers to raise a nap on cloth. No artificial contrivance has been found to equal the Teasel for this purpose. Do any of our readers know where it is cultivated in the United States? Belgium and France appear to be the largest growers. The seeds are sown in spring and transplanted in August and September, and in twelve months the crop is gathered. The heads must be gathered before the flowers have bloomed, else the points are dried too much and lose their elasticity.

Sardines from Maine.—The American industry of putting up sardines flourishes in Maine. Eastport exported last year the amount of $650,500. The number of factories has increased during a year to thirteen.

It is true the crow is a thief and steals the farmers' corn; but it is not without caws.—*Boston paper.*

The Grape Enemy.—To show the anxiety felt abroad to keep the phylloxera at a distance, a lady writes that crossing the border from Mentone, their party returned with a magnificent bouquet and were relieved of it by the custom-house officer, with the information that all plants and vegetables were confiscated for fear the enemy of the grape vine might be introduced in a yet uninfected district.

The variety of the products of the soil of North Australia is extraordinary. Cotton, sugar, rice, maize, arrowroot, tobacco, grass cloth plants, ginger, jute, hemp, sorghum, indigo, coffee, cocoa, nutmeg, cinnamon, millet, the earth-nut or arachis, tapioca, mangoes, bread fruit, guava, jack fruit, West India yams, all kinds of melons, beans and sweet potatoes have been successfully cultivated.

The European Concert.—An old lady thinks that if all Europe joins in one concert, it will be too loud, and that the bugle, she hopes, will be omitted, though she fears there will be too many drums.

EDITORIAL NOTES.

HORTICULTURE IN AMERICA.—Prof. Chas. Joly, in the volume of the *Journal de la Societe Nationale d'Horticulture*, pays a liberal compliment to the progress of horticulture in America. He has seen the addresses of 8,000 nursery and seedsmen of America, and regards the successful establishment of a Nurseryman's Association, such as met recently at Dayton, as a mark of horticultural progress well worthy of European admiration. He remarks on the wonderfully active and useful career of our horticultural societies, and shows particularly how much the Massachusetts Society has done for America. Vine culture in the United States is represented truly as having taken a wonderful leap in horticultural progress. He repeats what has been stated before, and seems to give credence to the report that an immense quantity of American wine is sent to France, and there re-shipped to America with French brands, so as to satisfy those who firmly believe only that which comes from abroad can be good for anything. He gives great credit to the governments of those States which encourage science, and especially to those which have appointed State entomologists, whose duty it is to "study all that concerns the parasites of the vegetable kingdom in their several latitudes." Altogether, we have seldom read a more appreciative essay on American gardening than this excellent production of Prof. Joly's pen.

DYER'S NURSERY, NEAR PROVIDENCE, R. I.—This famous nursery was founded in 1824, and during the past seventy years has furnished most of the beautiful trees that abound in that section. Not far from the entrance, in front of the Dyer mansion, stand two gigantic Norway spruces, towering up about ninety feet. These were brought from Boston, when very small, in a wagon, by Dea. Daniel P. Dyer. To the south of these stands what is probably the largest and grandest tree of its kind in New England, if not in the country, a purple-leaved beech, having a trunk three-and-a-half feet in diameter and rising fifty feet, with a shade-diameter of sixty feet.

Being a botanical "sport," about one-half of its fruits produce purple beeches, while the other half of the nuts yield trees with green foliage. At the west of the house is the fern-leaved beech that is mate to the elegant Newport tree in front of the Redwood Library. This tree has never borne fruit, though the trunk is now eighteen inches in diameter, and the tree is more than forty years old. For beauty of form and foliage it is unsurpassed. A number of small trees of this variety are now in these grounds. The "sport" varieties of beeches are the purple of various shades, the fern-leaved, the weeping and the cut-leaved.

Here are varieties of magnolias. One tree, the Magnolia acuminata, or cucumber tree, is two feet in diameter and sixty feet high. The Magnolia macrophylla has blooms eighteen inches in length, and they are snow white.

Here are Babylonian willows of pure stock, the parents having been brought in a box of wet sand from the grave of Napoleon in St. Helena, by Capt. Jacob Smith, of Newport, near 1832, and given to Charles Dyer.

The rarest and most beautifully blooming tree here found is the Virgilia lutea, set out in 1835 and now a tree sixty feet high, with a trunk two feet in diameter. It blossoms in large racemes, and the pedicels are white and shaped like pea blooms. This gives it a magnificent appearance. Its compound foliage in spring is of a bright green, and in autumn of a tender yellow. The wood is also of a yellow tinge, and hence the tree is sometimes called the yellow Virgilia. It produces seeds in small pods. Its habitat is southern Kentucky and Tennessee.

"Lake Wisconsin."—A leading scientific gentleman, publishing a scientific paper in England, in which one might expect even geography to be accurate, gives "Lake Wisconsin" as the northern limits of Pinus Banksiana.

Linden's Catalogue.—Mr. J. Linden has published for the use of Americans an edition of his catalogue in the English language. As an illustration of the difficulties surrounding the translation of one language to another—even a modern, to say nothing of a dead language, to which we recently adverted, we may note here that when Mr. Linden tells us he was "the vanquisher of the Grand National Exhibition at Brussels in 1880," he probably means us to understand that he took more premiums than any other exhibitor.

The Orchid Album.—Under this name a new monthly serial is to be issued by Mr. B. S. Williams, of London. The colored plates are by Fitch, the botanical descriptions by Moore, while Robert Warner and Williams will manage the cultural part.

Tenth Annual Report of the Secretary of the State Horticultural Society of Michigan.—By Charles W. Garfield, Secretary.

This is a magnificent work of 619 pages. To say the least, few State reports come to our table equal to this in value. A good idea is the "Secretary's Portfolio." In this are given selections from various sources of ideas that may have an influence on the horticulture of Michigan, and which form admirable texts for discussion at future meetings. A chapter of inestimable value is a list with location of the flora of Michigan, by E. F. Smith, of Hubbardston. Michigan must be a grand State for the botanist as well as the horticulturist. No less than 1559 species of flowering plants are enumerated in this list.

Kansas State Board of Agriculture; Second Biennial Report.—From J. K. Hudson, Secretary. A few years ago the writer of this was sitting in a leading hotel in a far Southern State discussing with representative Southern gentlemen what could best be done to make Southern Agriculture prosperous. In the course of conversation one remarked: "It surprises me that one preparing to emigrate, should prefer, a State like Kansas, for instance, to ours. We have a magnificent soil and climate, cheap land and the richest pasture for cattle, where the animals may roam at large all through the winter without any care from the hand of man. We have magnificent rivers well stocked with fish, and harbors that will hold all the merchant vessels of the world. There is, indeed, no natural advantage that any one of the States have but we have them all in one down here. Yet they go to a State like Kansas, and give us the go-bye. A State where they are roasted in summer and frozen in winter; eaten up by grasshoppers one year and dried up the next, where the soil is often so rocky that they have to grub and sweat to get it ready for grain, or else it is so dry that a grain will hardly grow. They neglect our magnificent forests and settle on land where they can hardly get a stick to burn." Just as we replied then, this report proves now. The State is full of live people, who know that it is

no use having good things without letting the world know about it. Possibly no State has done more in the way of advertising its advantages than Kansas, and no State has reaped so great a reward. It is now one of the most prosperous States in the Union, and it deserves its success. This report is full of statistics, referring to every county in detail, so that any one engaged in any special pursuit can see at once where it would be best to settle in view of his special calling. He need not spend his all in tramping around for years to find out his mission. With such a guide as this in his hand, the intelligent emigrant will not be at a loss to know where to settle.

ONTARIO AGRICULTURAL COMMISSION.—Report of the Commissioners appointed under the order of the Council, April 3d, 1880. S. C. Wood, Commissioner of Agriculture for Ontario, Toronto.

This Commission was appointed to inquire into the agricultural resources of the province of Ontario, and this large and interesting volume of 550 pages is the result. It gives a new idea of the resources of the province. Few persons, we suspect, had any idea that its agricultural resources were so varied. Among other reports there is an extended one on forestry. Canada has always been regarded as a great lumber region, but we had no idea that there were so many of the larger and best kinds of trees that could be turned to practical account. In Canada, however, as here, there is much concern as to the future through the wanton depletion of the forests; but from what we gather here as to the ease with which so many kinds can be grown, it will not take long to bring up a new supply under forest culture, as soon as the scarcity comes to a point that will make artificial culture profitable. From what we can gather from this excellent report, Canada will still keep the lead as a lumber region long after all the native woods have been cut away, and artificial forests have to take their place.

MR. CHARLES DOWNING.—This truly veteran pomologist passed into his eightieth year on the 10th of July. He is still able to walk a mile or so at a time, and that he may yet be spared to walk his mile some years longer with us will be the earnest wish of the thousands who have been aided by Mr. Downing's work. Those of us who have not reached old age, but are pressing closely towards it, must often have sad thoughts of the coming time when they can no longer be useful laborers in the world; but surely in the case of so useful a life as Mr. Downing's they will have some compensation in sitting down to rest a while before they go, and look back over on the good work they have done.

PROFESSOR BEAL.—A correspondent from Cambridge, Mass., writes: "The article on 'Forestry Notes' in the July number, page 212, of the GARDENER'S MONTHTY, by Prof. Beal, is very interesting and valuable; but if the section was given where the agricultural college is located it would add to its value. Is it in California, Colorado, Kansas, Ohio or Pennsylvania?"

[When Hans Brietman exclaimed, "Oh, dunder! vat ish glory! Oh, blitzen! vat ish fame!" the reader is inclined to smile. But we see it is no laughing matter. We thought the well-earned fame of Prof. Beal sufficient for all the world. In future, however, the professor himself may see the propriety of writing "at the agricultural college (Lansing, Michigan), is a small arboretum;" while we, for the present slip, in not noting the full address, beg our correspondent's pardon.]

MR. W. T. HARDING.—Our excellent correspondent and friend, W. T. Harding, has resigned his position as superintendent of the beautiful cemetery at Upper Sandusky, Ohio, for a sojourn of some length in England; with, however, the intention of finally returning to his adopted land.

PROF. L. M. UNDERWOOD.—A Philadelphia bookseller writes: "The notice which you gave of Underwood's ferns brought me an order for a copy, and I sent to the author, who is also his own publisher, for his bookseller's prices. I learned by return mail that there was a small margin conditioned on the purchase of at least four copies in order to make any profit on the one. So I ordered the four copies and sent net cash with the letter. Since this time I have written several letters, but got no reply, and, in despair of getting the work from our house, the customer countermanded his order. It seems to me you ought to show up a professor like this as well as notice his work."

[We can only say that on receipt of a circular from Prof. Underwood, we enclosed a dollar for the work, and which came at once in due course of mail. The notice of the work was based on its merits, as judged from this copy bought of him, and we know nothing further.

At this season of the year college professors usually take a holiday, and the explanation

probably is that he has "gone off" for the season. But when a man undertakes to be his own publisher, he has no right to go away without leaving some arrangements for attending to business. Since writing the above the Philadelphia dealer informs us that the books have come to hand, but long after they were of any present use to him.—Ed. G. M.]

ATLANTIC CITY.—During a recent visit to this famous seaside resort, we were much interested in the progress gardening is making there. When the city was first started, people regretted that trees would not grow, and we had many letters seeking advice. That advice was to plant thickly, and we believed anything would grow. This proves to be the case. The city is now beautifully shaded, and many rare trees are to be seen occasionally, as well as the commoner willows and poplars. Flowers do amazingly well, and it has become for gardening one of the prettiest places we know. Any of our friends coming to Philadelphia should provide for a look at the ocean from Atlantic City. It is but a short ride. The Camden and Atlantic Railroad takes passengers there in about eighty or ninety minutes, and at a trifling rate of fare. There are few more interesting sights in nature than to see this huge city, with its thousands of inhabitants, built on sand that but a few years ago was covered hundreds of feet by the deep sea waters, and heard no voice but that of the wild sea waves.

GRAVE OF SIR JOSEPH PAXTON.—This eminent gardener, who made Chatsworth so famous, a correspondent informs us, lies buried in the churchyard of Edenson alongside of the remains of the Duke of Devonshire, his friend and employer. In death as in life they are not separated.

ABIEL CHANDLER.—It is our misfortune at times not to hear of the death of friends till some time after. Abiel Chandler, who died at Concord, New Hampshire, on the 22d of April, in his seventy-fourth year, was one of the earliest friends of the GARDENER'S MONTHLY, and among its most highly esteemed correspondents. Unknown to us personally, he became attracted to the magazine, as he once wrote, by its "intelligently practical character," and remained its fast friend to his death. He was originally a silversmith and maker of mathematical instruments, but for the last twenty-five years had retired from active business and devoted himself wholly to amateur gardening pursuits. In almost every community progress depends on one or two leading men, and such a man was Mr. Chandler in his town. He fought against an unjust pavement effort, and by the help of the GARDENER'S MONTHLY succeeded. Only for his efforts, to-day the people of Concord would be paying a tax on every yard of pavement laid down. The present supply of water in the town is mainly through his efforts; the newspapers of that date show how nobly he fought the project through. As a maker of telescopes he was probably second only to Alvin Clark. His funeral from the Unitarian Church of Concord, was attended by a long concourse of his fellow-citizens. He leaves a widow and five children, one daughter, Lydia, being the wife of Jacob Manning, the well-known and esteemed nurseryman of Reading, Mass.

B. S. FOX.—Pomologists, especially those interested in pear culture, will learn with regret of the decease of this excellent man. He was one of the earliest to engage in the nursery business in California, and had made it a great commercial success. In May last he decided to rest from his labors and to make an extended horticultural tour through this country and Europe. Arriving in Chicago, he was taken with what appeared to be a severe cold, and he rested there some days. Recovering somewhat he again started East. On reaching Germantown early in June, he was suffering from a severe cough and nausea which prevented him from taking any solid food, and he left for New York in order to get medical advice as to the propriety of an European trip. The result was this last was abandoned. He passed the early part of the summer in visiting Eastern nurseries. His letters during this trip overflow with enthusiasm. "What," he writes to the editor, "a magnificent concern is the Dingee, Conard Rose establishment. I must say it is the neatest, cleanest and best arranged concern of the many I have seen in the Union, and, what it is always a pleasure to note in such connections, the superintendent is my idea of what a perfect gentleman should be. Of course one of my first visits was to the Parsons' concerns, and among the first met Mr. Trumpey. What a whole souled man he is. It was a great pleasure to me even to watch his enthusiasm over a new plant. I have rarely enjoyed a half day more than in looking over with him the hardy azaleas and rare trees and shrubs which abound here." Finding his health continue to fail he was gradually working his way homeward, and

reached Council Bluffs, opposite Omaha, on the Missouri, where he died about a month after the above letter was written.

Mr. Fox will long be pleasantly remembered by his already famous seedling pears. The B. S. Fox we noted last winter for its superior excellence in every way. It is one of those kinds which will grow in popularity as the years roll away.

Mr. Fox was never married. His nephew, Richard Fox, has for some years been actively engaged in business with him, and no doubt the work so well begun by Mr. Fox will be continued in full credit to his memory.

MAJOR-GENERAL ROBERT PATTERSON.—This gentleman, whose reputation is as national as it is local, died recently in Philadelphia, in his ninetieth year. He continued strong and active, and attended regularly to business up to a day or two of his death. Few men have made more of an impression on the age in which he lived than he. There is scarcely an intelligent interest in Philadelphia that has not been aided by his example and encouragement. For some years he was among the leaders in horticulture, and was once President of the Penna. Horticultural Society. He was born in Ireland, but came with his parents to this country when quite young.

PROCEEDINGS OF THE CALIFORNIA ACADEMY OF SCIENCES, JUNE 5TH, 1881.—Prof. Davidson, San Francisco, President. By this issue it will be a pleasure to those who know of the good work of this society in the past, to know that at length it is nearly out of debt, and the prospects for a full revival of its former usefulness were never better. The present issue is mainly devoted to an account of the reception given to Lieutenant Berry, previous to the departure of the Jeannette Search Expedition.

It is worthy of note that when any great discovery is made in these arctic researches the expeditions meet with great praise from the press, but when anything serious occurs, then the press wonders what possible use can flow from these risky researches, and hopes the folly of fitting out new expeditions will end. The fact is, that there is rarely any great good comes to humanity except through human energy and human suffering, and possibly many a life lost in arctic research might have been lost long before in the slothful ease and fashionable folly of city life, from which so often comes the "what good" cry. There is a risk everywhere in exploring the unknown—in tropics as well as in the arctics—some greater and some less, and which those who desire to serve their fellows are ever ready to accept. So long as hardy, good men are ready to explore the arctic regions it is the duty of the community not to check but to aid their heroism.

There has never been an arctic expedition, no matter how disastrous to the actors, that has not resulted in great good. Every new fact they have gained for us is of service. What is yet to be gained challenges our further research. From the very facts which these expeditions have gathered, we may now believe more strongly than ever that there is a space at the poles, perhaps a thousand miles in diameter, which is always clear of ice and snow. In other words, that the arctic ice is simply a ring which marks the outer edge of the region of the North Pole. We know that as the sun warms the tropics and expands the atmosphere, the cool, heavier air presses on it and forces it upwards, and that this upper current is drawn into the vacuum formed by the rolling away of this cold arctic current to tropical lines. At the tropics there is a surface of 25,000 miles in width, from which this warm air rises, the width narrowing to 0 at the pole; and of course the warm air, though cooling considerably on its northward course, yet gaining much of what it loses by concentration, of considerable warmth even when all the lines meet together at the Pole. At any rate, it must of necessity be a physical law that the volume of air which is sucked into the vacuum at the Pole must certainly be much warmer than that which has rolled southwardly, and which only becomes cold again as it in turn passes over the region of perpetual ice. The open space must be there, and if we can only once penetrate this icy ring to this open tract beyond, who knows but it may be filled with human beings, and plants, and animals which any one of us would give a great deal to see. This is the great problem now, and it is brought nearer and dearer to us with every effort made. Dr. Emil Bessels, who was left behind with the wrecked Polaris when half the ship's company started on their forced and fearful voyage on the ice field, but who also was subsequently rescued, has just published his account. Not among the least interesting of the facts he records is the meeting of an Esquimaux who had known former explorers, and who had since then married a woman from a tribe from the far north, of which they had before had no

knowledge. It is pleasant to read of the kindly send-off which the California Academy gave these heroic men, and we must all wish them every success.

treatise on horticulture for the pages of the *Encyclopædia Britanica*, and is here issued in separate form. It gives a brief account of the whole subject of modern practical gardening in

STANDARD GOOSEBERRIES.

EPITOME OF GARDENING.—By Mr. Thos. Moore, with an introduction by Dr. M. T. Masters, Edinburg. Published by Adam and Charles Black.

This epitome of gardening was written as a a form likely to be useful and easy of reference, and it will therefore be a standard work of reference to every gardener, or to any one with the slightest interest in garden culture. We are

often asked to name works on different branches of gardening. Some want something about cross-fertilizing, others want to know about flower culture, others ask for something on greenhouse heating or fruit raising. We have often to say there are no works on these special subjects. Now we may say to all, get the "Epitome of Gardening."

Of course it is but an "Epitome." One who reads it will only get the heads; the tails and details must be sought for in the special works where they exist, or from practical observation where they do not. For instance, in referring to the grafting of currants and gooseberries, which was first made known through our pages, we are simply told "they are sometimes grafted on single stems three or four feet high, in which form the fruit is more accessible." The reader will at once surmise that the ordinary currant or gooseberry stock would not grow three or four feet high, and he will have to go to other sources to find out that the common currant is not the stock, but Ribes aureum, the Yellow Missouri currant, is. In like manner, from the intimation about the fruits being "more accessible," he might be led to believe that that was a special advantage of some moment in currant culture. He would have to look into other works for its exact value.

Perhaps if we wish to be critical, we should have desired more care in the rendering of the continental names of fruits; or it may be after all that we in America have not the right orthographies, for there is no certainty but direct knowledge as to the certainty of personal names. In illustration of what we mean, we may note Early Purple Gean, for the cherry we call Early Purple Guigne, and Duchesse de Pallnan where we should write Duchesse de Pallnau. But we do not wish to be critical. It is one of those great works which cannot be perfect. We shall be all satisfied to take it just as it is.

CATALOGUE OF THE PHÆNOGAMOUS AND VASCULAR PLANTS OF MICHIGAN.—By Chas. F. Wheeler and Erwin F. Smith. Published by the authors at Hubbardston, Mich. Price, 50 cents.

This interesting catalogue, prepared for the Pomological Society's report, has been issued separately by the authors, at a price that will barely pay for the cost of getting it out, leaving the work of preparation—the labor of many years—to use a trite but very expressive phrase, a labor of love. These lists are of immense value to students in the States the lists cover, and to others everywhere who study geographical botany, and we have no doubt those so interested will feel grateful to these botanists for what they have done for them.

MANUAL OF CONIFERÆ.—By James Veitch & Sons. Published by the authors, Exotic Nurseries, Chelsea, London, England. This is a general review of the whole order of Coniferæ, with a synopsis of the hardy kinds cultivated in Great Britain, with their place and use in horticulture.

In naming plants, every botanist knows how much aid is derived from a correct answer to the question: When, where and by whom was the first plant found? Now, as regards conifers few are in a better position to give the personal histories of many kinds than the authors of this book, for no single firm has done so much towards introducing them as they. Indeed the personal histories of the kinds which they give here, is among the great attractions of the work. We have had numerous works on the conifers during the last quarter of a century, but the personal histories alone would render this work valuable, and give it a distinct field of its own. We did not know till we read it here that Jeffrey—after whom Pinus Jeffreyi was named—did not return to the old world after his employment as seed collector on the Pacific coast. The last that was heard of him was that he joined the expedition, which, under Lieutenant Ives, we suppose explored the Gila and Colorado rivers.

In regard to the treatment of the work, it is enough to say that the numberless disputed points are treated here very judiciously.

In regard to nomenclature, it is no secret that the best botanists, as private letters would attest, yet feel "bothered" as to the limits of species and genera, and it is by no means improbable that the end of change in the names of conifers has not yet been reached. The Veitches do not attempt to alter existing nursery names, but they honestly give the correct state of the case, and leave that which is right to work its own way. For instance, as regards our Mammoth tree, they always use "Wellingtonia gigantea," in referring to it. But in the history of the plant, they show that Dr. Lindley, who named it, was mistaken, in his belief of its distinctness from Sequoia, that "Sequoia has priority of designation, and must be retained," and that "the name Wellingtonia has lost ground every-

where except in England." In a like manner with Thuja gigantea, called in England Thuja Lobbii, and Libocedrus decurrens, known there as Thuju Craigiana. Though still employing these terms in the general treatment of the subject, the history of the genuine name is correctly given.

But here, as elsewhere, we find no small amount of worry and doubt as to what is meant when common names are used. Both Pinus inops and Pinus Banksiana are spoken of as "scrub pine." Of course the authors had to follow American works, on which they would have a right to depend. But it must not be forgotten that very often these names given as common names are not common. Indeed they are often invented by the authors of the works, who, while giving the botanical characters, seem to think they must make a "common" name, but which generally the community repudiates, and makes one for itself when its own good humor insists that it shall do so without the slightest regard to the common name made for it by the botanists. It is just so with Pinus Banksiana. In Michigan where, if anywhere, it is at home, its common name is "Jack Pine," and the common name of "Scrub Pine," made in advance by the botanist, is common no where that we know of. In speaking of the "Yellow Pine," it is fortunate our authors told us they mean Pinus mitis. But though Pinus mitis is sometimes called "Yellow Pine," it is much better known in some parts as "Spruce Pine," and in others as "Bull Pine," than anywhere as "Yellow." While Pinus palustris, P. tæda and even Pinus rigida is more often called "Yellow Pine" than P. mitis is.

When speaking of "Yellow Cedar," they tack this on to Thuja gigantea, but this, even allowing for all the difficulty and confusion which these uncommon common names make, must surely be wrong. The name is given by the settlers to the Cupressus Nutkænsis from its peculiar yellow green during the winter and early spring, and this yellow tinge is still more marked when it comes into blossom; then the tree seems to be covered with golden yellow dots. If we are mistaken in this we shall begin to doubt whether we know anything about American coniferæ; which doubt, however, in the midst of so much confusion and difference of opinion, we are often almost ready to entertain. If the Thuja gigantea is not yellow cedar, of course much of the popular account referred to this plant under this name, leads necessarily to great disappointment and serious loss to forestry planters.

Our authors are not responsible for all this trouble. Indeed it is wonderful, with all the existing confusion, that they have been able to steer so judiciously through them all, and to produce such a truly superb work. It is one which does credit to progress, and will be indispensable to every person who has an intelligent interest in coniferous trees.

MARINE ALGÆ OF NEW ENGLAND AND ADJACENT COAST.—By W. J. Farlow, M. D., from the U. S. Fish Commissioners' Report for 1879.

This work by Dr. Farlow describes all the known sea weeds of that portion of the United States which runs from Eastport, Maine, to the coast of New Jersey. Of the work itself, that it is done by Dr. Farlow is sufficient guarantee of its excellence, standing, as he does, among the highest of those who have made a study of the lower order of cryptogams. He finds eighty-four genera, none of them, however, containing a large number of species as compared with what we find in flowering plants.

Some of the rarer species are illustrated by detailed drawings. The "list of works consulted," is in accordance with Professor Farlow's usual complete way of rendering his fulfilled tasks, and is in itself a valuable contribution to algæology. The desire for strict accuracy is one of the marked features of Prof. Farlow's work. His lists of "errata" usually correct little things which most persons would let pass, feeling that the reader will surely be able to make the correction without any aid from the author. It is a good illustration of the almost impossibility of getting the proof-reading absolutely correct in any work to find at p. 193, line 11, "L. Rahenhorst," printed for Rabenhorst, and have the error escape the lynx-eyed author. When we meet with these cases, we take comfort that a rapidly printed monthly magazine may not be always perfect.

FRUITS AND FRUIT TREES OF AMERICA.—By Charles Downing. Third appendix to the second revised edition. Mr. Charles Downing's edition is an essential to every intelligent pomologist, and will long remain a memento of the talents and industry of the author. There is nothing like it in the world, and it is one of those great works which astonish Europeans, and of which even Americans feel proud. Mr. Downing has now reached an age when most men retire from

active life. Alone in the world, and deprived so recently of one who has been half his life to him, the world may feel still more grateful to him that he works on and on for them. It is a debt the world will be grateful in acknowledging, and will be slow to forget.

In this task Mr. D. has collected the histories and descriptions of all the deserving fruits that have appeared since his last supplement. Many of the new apples are of Southern origin. Of cherries, sixteen new ones are introduced, but many of them of foreign origin. Thirteen grapes, sixteen peaches and seven plums are described. Pears are only ten, and four of these are European. It would seem as if there was a lull in the production of American varieties. In regard to the Keiffer pear, raised at Roxboro (not Roxbury), near Philadelphia, it may be worth noting in view of the divergent views of its value, that Mr. Downing says, "to have it in perfection, it should be gathered when fully grown and ripened in the house."

In regard to raspberries and strawberries, they are so easily raised, and succeed each other in such vast hordes that we have thought they were scarcely worth recording in a work of permanent value like this. Mr. Downing seems to be somewhat of the same opinion now. He says: "The Black cap family is now numerous, and of large size and good quality," and then proceeds to lump them as a whole without individual descriptions: Sweet Home, Surprise, Elsie, Duncan, Hamilton, etc.,—describing, however, the Gregg in another place. Mr. Downing thinks, however, there is room for a perfectly hardy, bright colored red raspberry, of high quality, and flesh sufficiently firm to bear transportation to a long distance. He thinks the raiser of such a variety ought to be richly rewarded.

RAILROAD JOURNEYINGS.—Central Railroad of New Jersey. Tourists' Guide.

The railroads have in a great measure taken the places of country seats. Instead of a home in the country in which one can retire from the heats of summer, the fashion is now to travel. The railroads recognize the fact that they have to cater to this intelligent class. Flower beds adorn the station grounds, and the beauties of the leading points of interest are laid before the public. This little work is in this line of public demand, and shows how beautiful are many of the scenes along the line of the road.

TALKS ABOUT FLOWERS.—By Mrs. M. D. Welcome, Yarmouth, Maine. There are some three dozen of these little talks in separate chapters and about such little matters as lady gardeners especially like to have such little chats about. How Mrs. W. talks our readers know by her various communications to our pages. We are sure they will not be disappointed by a reproduction of these talks in this little book. The first talk with her to-day on "verbenas," and then "fuchsias," or on lilies or many other popular garden flowers, and there are pretty illustrations too.

HORTICULTURAL SOCIETIES.

EDITORIAL NOTES.

MISSISSIPPI VALLEY HORTICULTURAL SOCIETY, of which Mr. Parker Earle is President, says: "The next annual meeting of the Mississippi Valley Horticultural Society will be held in Cincinnati, Ohio, on the 7th, 8th and 9th of September, 1881. The meeting will be mainly for the reading of papers and general discussions of horticultural topics. Many of the leading horticulturists of the country have signified their intention to be present at the meeting, and papers have been promised from William Saunders, of Washington, D. C.; Prof. S. A. Forbes, of Normal, Ill.; T. V. Munson, of Denison, Texas; S. M. Wiggins, of New Orleans, La.; G. W. Campbell, of Delaware, Ohio; T. T. Lyon, of South Haven, Mich.; J. Decker, of Fern Creek, Ky.; Prof. T. J. Burrill, of Champaign, Ill.; Prof. J. L. Budd, of Ames, Iowa; Prof. George Husmann, of Columbia, Mo.; W. H. Ragan, of Clayton, Ind.; J. J. Colmant, of Columbus, Miss.; J. A. Warder, of Cincinnati, Ohio. Other valuable papers are expected.

AMERICAN POMOLOGICAL SOCIETY.—Our readers must not forget that the American Pomological Society will hold its meeting this year in Boston, on the 14th and 15th of September. Chas. Wilder will preside. It may be the last occasion when the friends of pomology may meet their veteran chieftain, and no doubt there will be a hearty response to the grand welcome which Boston horticulturists offer them.

THE ATTENTION OF

COMMERCIAL FLORISTS,

AND OTHERS WHO USE

PLANTS, SEEDS OR BULBS

in quantity, is directed to our **FALL WHOLESALE LIST**, which embraces

250,000 ROSES

of all sizes of the kinds best fitted for **Winter Forcing** or for **Spring Sales**, to which we invite comparison of **quality** and **prices**. Our **General Florist's Stock** of upwards of

A MILLION OF PLANTS,

Comprises all the **new** and **standard** sorts of **Begonias, Bouvardias, Carnations, Chrysanthemums, Coleus, Caladiums, Dracenas, Ferns, Fuchsias, Geraniums, Primulas, Palms**, etc., of various sizes, to which also we invite comparison of **quality** and **price**. Our stock of

BULBS FOR WINTER FORCING

Comprises **Dutch and Roman Hyacinths, Lilium Candidum and longiflorum, Paper White Narcissus, Jonquils, Tulips, Lily of Valley**, etc.

IN SEEDS WE OFFER SUPERIOR STRAINS

Of **Begonias, Carnations, Calceolarias, Cauteurens Chrysanthemums, Coleus, Pansy, Petunia, Stocks, Verbena, etc, LIST free by mail.**

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FLORISTS' SUPPLY CATALOGUE READY!

Sole Agents for the Sale of

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Large-flowering Perfection Mignonette

About 200 Seeds in a Package, at 50 Cents.

The best Mignonette for the market and Florist's use. Remarkably vigorous, free-flowering and sweet. Its size is larger than the Giant, alongside of which we have seen it flower ourselves. See Illustration in *Gardener's Monthly*, May number, 1881, page 145.

WHOLESALE BULB CATALOGUE READY!

New Illustrated Basket Sheet Ready!

Send for either if you have not received it, and examine Novelties offered.

Orders for Mexican Orchids Forwarded to the Collectors, **Messrs. Droege & Co., Mexico.**

ROSES for FflorISTS

Largest Stock, Choicest Varieties, Best Quality.

SIZE OF PLANTS.—We send vigorous, well matured plants, rooted last Spring, carefully shifted and ready to go at once on four-inch pots. Most varieties are from eight to twelve inches high.

IMPORTANT.—OUR ROSES ARE NOT FORCED, BUT ARE GROWN IN ORDINARY SOIL WITHOUT MANURE OR ANY STIMULATING PROCESS WHATEVER; THEREFORE THEY REQUIRE NO NURSING, BUT WITH ONLY ORDINARY TREATMENT, WILL GROW OFF STRONG AND HEALTHY, AND COME QUICKLY INTO BLOOM. FLORISTS SAY THEY GIVE BETTER SATISFACTION AND QUICKER RETURNS THAN ANY OTHERS THEY CAN BUY.

PRICES OF GENERAL COLLECTIONS.

	Per 100.	Per 500.	Per 1000
EVER-BLOOMING ROSES, First class assortment,	$ 8.00	$35.00	$70.00
HYBRID PERPETUAL ROSES, " "	10.00	50.00	90.00
MOSS ROSES, " "	15.00	75.00	150.00

SPECIAL ASSORTMENTS.—Persons who wish special assortments should send their lists and have them priced before making the order. This insures perfect satisfaction and the lowest price for the selection and number wanted.

TERMS.—Cash with the Order—Remittances by **Postal Order, Bank Draft** and **Registered Letter** are at our risk. **No charge for Boxes or Packing.** We guarantee safe carriage, and add liberally to offset Express charges, cost of remittance, &c.

THE FOLLOWING CHOICE SORTS ARE STILL IN STOCK:

		Per Doz.	Per 100.
INNOCENTE PIROLA,	New White Tea for Florists,	$2.50	$12.00
MAD. ANGELE JACQUIER,	New and fine, bright rosy Crimson,	2.50	12.00
REINE MARIE HENRIETTE,	New Crimson Glorie de Dijon,	2.50	12.00
MAD. ALFRED CARRIERE,	New Salmon Rose, fine,	2.50	12.00
PERLE DES JARDINS,	Finest New Yellow, for forcing,	2.00	10.00
AMERICAN BANNER,	New Striped, Crimson and White,	2.50	12.00
DOCTOR BERTHET,	New and fine, Carmine, Buds very free,	2.50	12.00
MARECHAL ROBERT,	Extra large pure White Buds,	2.50	12.00
CATHARINE MERMET,	Bright Pink, fine for forcing,	2.00	10.00
MADAME LAMBARD,	New, large Crimson Buds.	2.00	10.00
NIPHETOS,	Pure White Buds, fine for forcing,	2.00	10.00
DUCHESSE OF EDINBURGH,	Dark rich Crimson,	2.50	12.00
CORNELIA COOK,	Large Creamy White Buds,	2.00	10.00
GLORIE DE DIJON,	Creamy White, tinged with Blush,	2.00	10.00
BON SILENE,	Large Crimson Buds, excellent for forcing.	1.50	8.00
HERMOSA,	Bright Pink, profuse bloomer,	2.00	10.00
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For hundreds of other choice varieties see *Wholesale Trade List*, free on request to *Florists, Market Gardeners and Dealers*

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We have much the largest stock in this country of these **Magnificent New Roses.** The following varieties rank as among the best:

BEAUTY OF STAPLEFORD (Bennett) Darker than La France, magnificent buds, a healthy and vigorous grower, profuse bloomer, very fragrant. Price, 75c. each, $9.00 per dozen.

MICHAEL SAUNDERS (Bennett). Clear, dark Rose, large finely formed buds, a strong healthy grower, very continuous. Price, $1.00 each, $12.00 per dozen.

VISCOUNTESSE FALMOUTH (Bennett) Bright, Clear pink, very large size, opens well, healthy and vigorous, very valuable. Price, $1.00 each; $12.00 per dozen.

Information cheerfully given. Lists priced. Plants carefully selected and promptly shipped. Every care taken to satisfaction and please customers.

NOTICE.—This advertisement is intended for the **TRADE ONLY,** and not for private planters. Address

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GREENHOUSE HEATING

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Ventilating Apparatus.

Base-Burning Water Heater.
Three sizes. Patented, 1873.

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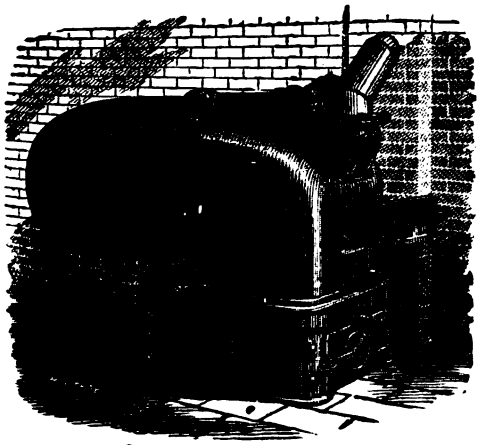

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Five sizes. Patented, 1867. New Patterns, 1873

Four Patterns of Boilers,

EIGHTEEN SIZES.

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IN GREAT VARIETY AND AT

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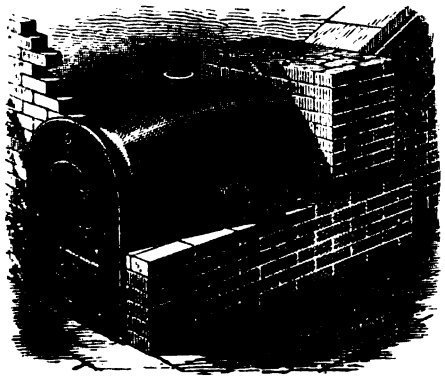

Improved Saddle Boiler.
Five sizes. New Patterns, 1877.

IMPROVED

Sash-Raising Apparatus,

LIFTING-RODS FOR SASHES,

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Send 6 Cents Postage for Illustrated Catalogue, with References and Prices.

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Prize Medal of Cincinnati Industrial Exposition of 1878; Medal and Diploma of International Exposition of 1877, "For best display of Bouquet Papers."

We beg to call the attention of the WHOLESALE and RETAIL TRADE in FLORISTS' GOODS to our well assorted stock for the Fall season:

BOUQUET PAPERS (ITALIENE), PASTED CARTONS,

Plain White Edges, Gold and Silver Edges, White Satin for Bridal Bouquets, Fancy Lace Paper for Weddings, Receptions and Parties.

IMMORTELLES—ORIGINAL BUNCHES.

White and all Colors.

DRIED GRASSES AND FLOWERS,

In great varieties and styles; very suitable for ornamental purposes.

ORNAMENTAL GRASS BOUQUETS.

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TIN FOIL—Best in the Market.

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Send Orders early in Fall. Illustrated Catalogue gratis on application.

Osage Orange Plants, Fruit Seeds, etc.

FOR FALL OF 1881.

The SPRING was so favorable to the growth of plants that our Osage Orange will be remarkably fine this season. Those wanting them in large lots will meet with favorable terms.
Correspondence desired with those who may need plants, or who may want

Mazzard Cherry Seeds, Plum Seeds, Peach Seeds, Mahaleb Seeds,

Or Seeds of any Forest Trees or Shrubs.

THOMAS MEEHAN,

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The "Golden" Pocklington Grape.

I have purchased from Mr. Pocklington and Mr. Charlton their entire stock of this variety for two years longer (contract ending with close of Spring delivery of 1883) and am prepared to offer inducements to dealers who wish a good specialty to place in their agents hands.

RETAIL ORDERS FILLED at $1.50 for One Year Old. $2.00 for Two Year Old.
Also the largest and best stock of

Ampelopsis Veitchii or Japan Ivy

In this Country at a Low Figure.

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Medal and Diploma awarded by the U. S. Centennial Commission, 1876, also Gold Medal and Diploma Awarded at the Exhibition of the Massachusetts Charitable Mechanic Association, held in Boston, 1878, to

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Manufacturers of Patent Improved

PORTABLE CELLULAR FIRE BOX RETURN FLUE BOILER

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FOR HEATING

Greenhouses, Graperies, Conservatories, Propagating Houses, Forcing Pits, Public and Private Buildings, Schools, Drying Rooms, and Heating Water for Baths.

ALSO KEEP CONSTANTLY ON HAND

Expansion Tanks, Evaporating Pans, Stop Valves, Cast-Iron Pipe, Elbows, Tees, Branches, Pipe Hairs and everything necessary, of the best material, for Greenhouse Heating.

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Bouquet Papers or Italiens, in great varieties of Styles and Patterns. **Pasted Cartons,** in all sizes.

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Dried Grasses and Flowers, suitable for Decorations. **Ornamental Bouquets,** for Vases.

French Green Mosses, Baskets, Wire Designs, Tin Foil. t.f.12

Our connection with European Houses enables us to sell goods at lowest figures. Orders will receive careful attention and prompt shipment. A. Riemschneider's (Brandenburg-on-Havel), Wholesale Catalogue of Roses and Bulbs, mailed free on application to us.

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MAGNOLIA GRANDIFLORA.

ORANGES AND LEMONS.

FRUIT PLANTS AND PALMS,

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FLOWERING BULBS AND ROOTS.

LOW PRICED TRADE LIST

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CELERY PLANTS

BY THE MILLION!

Such as **Golden Drop, Crawford's Dwarf, Solid White** and **Boston Market. Fine plants.** Price per 100 by Mail, $1.00; per 100 by Express, 75c.; per 1,000 $5 00; per 10,000 $40.00.

New Double White Bouvardia "A. Neuner," the most valuable new plant sent out for years. Price per plant in 2-in. pots, 75c each; by Mail, $1.00 each. New **Pelargonium "Maddon's Victor,"** strong plants $1.00 each. Also **John White's Mealy Bug Exterminator,** the only known remedy to kill the Mealy Bug without injuring the plant, $1.00 per bottle; $8 00 per dozen.

JOHN WHITE,

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Forest and Evergreen Trees,

Catalpa speciosa, European Larch, White Ash, Norway Spruce, &c., &c. Largest stock in America.

Forest and Evergreen Tree Seeds. **Forest Trees by Mail.**

s.s.f.7 **R. DOUGLAS & SONS, Waukegan, Ills.**

GRAPE VINES.

All Leading Varieties in large supply. Warranted true to name. Prices low. Also, the celebrated

NEW WHITE GRAPE,

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Send stamp for Price and Descriptive List. Also Trees, Small Fruits, etc.

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Orchids, Rare Plants, &c.

EAST INDIAN ORCHIDS.

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MEXICAN, CENTRAL

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SOUTH AMERICAN ORCHIDS.

I am importing constantly from those countries, and can offer much lower than the same can be purchased in Europe; and superior plants.

BEAUTIFUL FOLIAGE PLANTS,

Such as CROTONS, DRACÆNAS, DIEFFENBACHIA, MARANTAS, ALOCASIAS, ANTHURIUMS, &c., suitable for Fairs, Exhibitions, &c., at low rates.

Catalogues on application.

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Peach Trees, Asparagus, Strawberry Plants,

Cuthbert and Queen Raspberry, **Osage Orange,** &c., &c., in large stock at **low prices** to the **trade,** also prime **Peach seed.**

s.3 **JOHN S. BARNHART, Denton, Caroline, Co., Md.**

Lilium Longiflorum Floribunda.

We take great pleasure in calling the attention of Florists to this lily, believing it will supply a want long felt. A lily that is sure to bloom and more abundantly than **Longiflorum** ever did. In addition to the main stalk it sends up numerous side shoots which also bloom, thus prolonging the season for months. For a full description of this remarkable lily, send for our illustrated circular, mailed free.

s3 Address, **JOS. KIFT, West Chester, Pa.**

Swain's Improved Patent

HOT WATER APPARATUS

For Heating GREENHOUSES, Hot Houses, Conservatories. Public and Private Buildings, &c.

Thomas J. Myers, Jr., having purchased the Patent of the late THOS. J. MYERS, we are prepared to furnish all the sizes of BOILERS manufactured by the late Firm of THOS. J. MYERS & SON. We are making these BOILERS with GREATLY INCREASED STRENGTH AND DURABILITY. Send for ILLUSTRATED CIRCULAR AND PRICE LIST.

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THOS. J. MYERS, Manager. **1173 South 9th St., Phila.**

WINTER BLOOMING ROSES.

SAFRANO, I. SPRUNT, BON SILENE, BELLA, CORNELIA COOK, DOUGLASSIA, CAROLINE KUSTER, DUCH. DE BRABANT, PAULINE LEBONTE, and other varieties, 2½-inch pots $6.00 per 100; 4-inch pots $15.00 per 100.

PERLE DES JARDINS,

2½-inch pots $7.00 per 100; 4-inch pots $18.00 per 100.

DUCHESS OF EDINBURGH,

2½-inch pots $10.00 per 100; 3-inch pots $15.00 per 100.

NIPHETOS,

2½-inch pots $10.00 per 100.

MARIE GUILLOT,

2½ inch pots $10.00 per 100; 4-inch pots $20.00 per 100.

ROSES are in fine condition, plunged outside.

Full Assortment Greenhouse Stock.

TRADE LIST for July and August now ready.

ja.tf **W. L. SMITH, AURORA, ILL.**

FOR THE TRADE.

ROBERT J. HALLIDAY, FLORIST,

BALTIMORE, MD.,

OFFERS THE FOLLOWING FOR SEPTEMBER:

	Each	Per Doz.	Per 100
Acacia pubescens, yellow flowers, graceful foliage,	$ 50	$4 50	
Acalyphas Macafeana, Marginata and Musaica,	20	1 80	$12 00
Akelia Quinata, hardy climber,	10	1 00	$ 6 00
Alocasia Macrorhiza variegata, foliage handsome,	50	4 50	
" **Jenningsii,** foliage marked green and black,	25	2 40	
Ampelopsis Veitchii, superb hardy climber,		1 00	8 00
Anthericum vitatum, foliage green and yellow,		1 50	10 00
Azaleas, assorted flowering plants, 3-inch pots,		1 50	12 00
" " " " 4- "	25	2 40	15 00
" " " " 5- "		3 60	25 00
" " " " 6- "	1 00	9 00	
" " " 7 and 8-inch pots,	2 00	18 00	
Begonia rubra, flowers bright coral,		1 50	10 00
" **rosea,** flowers light rose,		1 50	10 00
" **metallica,** foliage metal-like,	20	1 50	10 00
" **Louis Chretien, new,** very handsome foliage,	30	3 00	20 00
Bertolonia Van Houtii, beautiful ornamental-leaved plant,	75	6 00	
Bouvardia Alfred Neuner, double white,	1 00	9 00	60 00
Caladiums, fancy, fine assortment,		1 50	10 00
Camellias alba plena, old double white, all with buds, 2 to 3 feet,	2 50	24 00	150 00
" " " " " " 2 feet,	1 50	15 00	100 00
" " " " " 18 to 20 inches, 5-inch pots,	1 00	10 00	75 00
" " " " " 10 to 12 " 4- "	50	5 00	40 00
" " " " " 4 to 6 " 3- "	25	2 40	15 00
Cissus discolor, climbing, very handsome foliage,		1 50	10 00
Clerodendron Fragrans, white flowered, double, habit dwarf, fragrance of the Daphne,		1 80	12 00
" **Balfouri,** beautiful greenhouse climber,		1 50	10 00
Coleus of 1881, the five new imported kinds,		1 00	8 00
Crotons, in twelve kinds,	25	2 40	20 00
Daphne odorata, 3-inch pots,		2 40	15 00
Dracæna, in six kinds,	50	6 00	40 00
Eranthemum tricolor, handsome foliage, Dracæna-like,		1 50	10 00
Euphorbia Jacquiniflora,		1 80	12 00
" **plenissima,** new double,	50	6 00	
Gardenia (Cape Jasmine), Florida, Radicans and Fortunii, 4 inch,		2 40	15 00
" " " " " " 3 inch,		1 50	10 00
Hydrangea Thomas Hogg, white flowered,		1 00	8 00
" **Otaska,** pink "		1 00	8 00
" **Japonica variegata,** foliage beautifully marked white and green,		1 80	12 00
Rhynospermum Jasminoides, valuable for cut-flower trade, climbing,		1 50	10 00

ROSES.

GROWN EXPRESSLY FOR WINTER FORCING.

Perle des Jardines (The Florist's Rose), 2-inch pots,	1 50	10 00	
" " " " 3- "	2 00	15 00	
" " " " 4- "	3 60	25 00	
Cornelia Cook, Marie Van Houteii, Marie Guillot, Marechal Niel, Bon Silene, Isabella Sprunt, and Safrano, from 3-inch pots **strong,**	1 50	10 00	

For other plants see **General Trade List** and my **Annual Illustrated Catalogue,** mailed free to all applicants.

Fine stock of **Specimen** and **Exhibition** plants always on hand. Prices on application.

Address,

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BALTIMORE, MD.

BUSINESS DIRECTORY.

☞ Send for Circular and conditions of insertion under this heading. ☜

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RANDOLPH PETERS, Fruit and Ornamental Trees, Wilmington, Del.

J. D. BRENNEMAN, Roses, Greenhouse and Bedding Plants, Harrisburgh, Pa

GEO. A. LONG, Nurseryman, Larissa, Texas.

GEO. SUCH, Rare Hothouse and Greenhouse Plants, South Amboy, N. J.

JNO. G. HEINL, Greenhouse, Hothouse, Bedding and New Plants, Terre Haute, Ind.

THOMAS MEEHAN, Nurseryman & Tree Seeds, Germant'n, Phil.

GEO. A. STONE, Nurseryman, Rochester, N. Y.

Foreign Grape Vines for Graperies.

We now offer the **Finest collection of Foreign Grapes** grown in the country. They are all **Good, Strong, Healthy, Canes**, all true to name, and all in excellent condition for shipping. Below will be found list of varieties grown by us one and two years old.

Price, 1 year old, $1.00 each. 2 years old, $2,00 each.

Black Hamburg,	**Muscat of Alexandria,**
**Muscat " **	**Bowood Muscat,**
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**Millhill " **	**Royal Ascott,**
**Popes " **	**Black Alicant,**
**Wilmots " **	**Dutchess of Buccleuch,**
Gross Colman,	**Calabrian Raisin,**
Lady Dow's Seedling,	**Buckland Sweetwater,**
Black Prince,	**White Syrean,**
Prince Albert,	**White Sweetwater,**
White Frontignac,	**Cannonhall Muscat,**
White Nice,	**Grizzly Frontignac,**
Santa Cruz,	**Chasselas de Fontainbleau,**
Golden Chasselas,	**White Chasselas,**
Trentham Black,	**Muscat Blanch Native,**
Black Frontinac,	**Frogmore St. Peters.**

We would also call special attention to our stock of Camellias, Azalias Daphnes, Acacias, and a general collection of **Winter Blooming and Ornamental Foliage Plants.** tap9

DAVID FERGUSSON & SONS, Laurel Hill Nurseries, Ridge and Lehigh Aves., opp. Laurel Hill, Philadelphia, Pa.

200,000

PEACH TREES for Autumn 1881 of the most approved varieties from early to late, also good stock of Plum and Apricot at the Milford Nurseries.

A. PULLEN,

au3 **Milford, Delaware.**

Peach Plum Apple TREES!

And a Full Assortment of Nursery Stock.

GEORGE ACHELIS, West Chester, Pa.

160 acres of good unimproved land for sale in Kansas, at $6.50 per acre. au8

NEW STRAWBERRY, MANCHESTER. PRODUCTIVE as CRESCENT—large, firm, bright, best quality. See Catalogue for Expert's opinions. Pot and Layer plants of Bidwell, Flach, Kirkwood and fifty best sorts. Plant now. Fruit next June au.2 **HALE BROS., South Glastonbury, Conn.**

WALTER ELDER,

Landscape and Jobbing Gardener,

1231 Rodman Street, Philadelphia.

Attends to all branches of his business on reasonable terms.

NOTICE TO BOTANISTS. Botanical Paper. Drying Paper, Genus Covers and Mounting Paper. The only House in the country which carries a stock of the above materials *Samples sent on application.* Send for our catalogue. Address, **GEORGE A. BATES,** Naturalist's Bureau, Salem, Mass. Please mention that you saw this advertisement in the *Gardener's Monthly.* t.ap.tf

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GERMANTOWN,

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GORGAS LANE STATION or WALNUT LANE STATION,

Or slightly nearer by street cars to

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The Nurseries contain over one thousand kinds of Trees and Shrubs, besides Fruit Trees and Flowers. European, African or Asiatic orders for trees or tree seeds, receive careful attention, and usually give customers entire satisfaction.

SAUL'S NURSERIES,

WASHINGTON, D. C.

The undersigned offers a fine stock of the following at low rates:

NEW PEARS, NEW PEACHES, NEW CHERRIES, NEW GRAPES, NEW STRAWBERRIES, &c.

Fruit Trees of all kinds.

An Extensive Stock, viz.:

PEARS, PLUMS, CHERRIES, APRICOTS, APPLES, Suitable to the SOUTH, &c.

Grape Vines, Strawberries, Raspberries, &c.

New sorts **Evergreens, New Ornamental Trees, New Shrubs, &c., Small Sizes,** suitable for **Nurserymen** as well as **large stock in great variety.**

DUTCH BULBS.

Large importations direct from the leading growers in Holland, First quality Bulbs: **Hyacinths, Lilies, Tulips, &c.**

ORCHIDS.—EAST INDIAN, MEXICAN, &c.

Beautiful Hothouse and Greenhouse Plants,

Crotons, Dracenas, Dieffenbachias, Orchids, Winter Blooming Plants, &c.

NEW ROSES. **Queen of Bedders, Bennett's Hybrid Teas, New French and English Roses.**

New Wistarias, New Clematis, Geraniums, Primulas, &c.

Everything at low rates. Catalogues mailed to applicants.

s.3 **JOHN SAUL, Washington, D. C.**

50 All Gold, Chromo and Lithograph Cards, (No 2 Alike,) Name On, 10cents. CLINTON BROS., Clintonville, Conn.

LILIUM HARRISII.

We have in this Lily a new variety of Eximium, with many peculiar characteristics of improvements over all Lilies of this species. **It blooms two or three times in succession in one season of growth.** The flowers are much larger and more fragrant than L. longiflorum, and can be forced into bloom by the first of January. It was awarded a **Special Premium of Merit at the Germantown Horticultural Society last March, also a Certificate of Merit by the New York Horticultural Society, held May 5th, 1881.**

For full description see circular mailed to all on application. I am now booking orders to be delivered by the first of October. Price, strong flowering bulbs, $1 50 each, $15 00 per dozen. Orders filled in rotation.

WM. K. HARRIS.
FIFTY-FIFTH & DARBY ROAD,
PHILADELPHIA, PA.
ap15

Strawberries.

Newest and Best Varieties.

Grown in Pots and ready for shipment after August 1st. Non descriptive priced catalogue **FREE.** Address,
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LILIUM AURATUM, December 15th,	. . . . .	$15.00 per 100
" CANDIDUM, August 5th,	. . . . .	5.00 "
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Especially adapted to the heating of

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This Heater is composed of sections, and can be enlarged or diminished in size at will.

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Florists and large planters are invited to inspect our stock of **ONE YEAR OLD ROSES**, which will be found the largest and finest in the country

Besides **STRONG PLANTS ON OWN ROOTS**, we have a **LIMITED QUANTITY OF EXTRA FINE PLANTS BUDDED ON MANETTI STOCK**, of the scarce, choice sorts of

MOSS AND HYBRID REMONTANTS,

Among them **COUNTESS OF MURINAIS, SALET, COMMON MOSS, CRESTED** and **GRACILIS.** Among **HYBRID REMONTANTS—ALFRED COLOMB**, the best of all Red Roses; **ANNE DE DIESBACH** the best carmine for forcing; **CHARLES LEFEBRE**, the best formed crimson; **COUNTESS OF OXFORD**, well formed buds. **FRANCOIS MICHELON**, the finest, freest summer-blooming kind; **MARIE BAUMANN**, a great favorite. **MAURICE BERNARDIN**, the most free flowering crimson.

All Florists who have tried both kinds, say that **budded plants** are decidedly preferable to plants on own roots, both for producing **fine blooms** and **wood for propagation.**

Of **ROSES** on own roots, we have a **large stock** of **Alfred Colomb, Anne de Diesbach, Baron de Bonstetten, General Jacqueminot, La France, La Reine, Prince Camille de Rohan, Victor Verdier,** all one year old very strong and fine.

Descriptive Catalogue and Wholesale Trade-List sent free on application.

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J. Churchman's New Seedling,

"THE SUPERB,"

Has now, after **seven years of trial**, during which it has excited the **renewed and unqualified admiration** of all who have seen it in bearing—proved its title to stand at the

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It has **fully established its claim to SUPERIORITY in all the points of a PERFECT RASPBERRY**, to wit: **SIZE, COLOR and FLAVOR OF FRUIT; PRODUCTIVENESS, EARLINESS and LENGTH OF BEARING SEASON, THRIFTY and HANDSOME GROWTH OF CANES, and**

GREAT HARDINESS,

having withstood the vicissitudes of the past two trying winters in exposed situations with no appreciable loss from Winter-killing.

THESE PLANTS are now for the **FIRST TIME OFFERED FOR SALE**, the **WHOLE STOCK** being in the hands of **THE ORIGINATOR.**

☞See cut facing first page of this September number.☜

For **DESCRIPTIVE CIRCULAR**, with prices and other information, address

J. CHURCHMAN,

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RARE ORCHIDS--JUST IMPORTED.

In addition to the list of **COOL ORCHIDS ADVERTISED ELSEWHERE**, we have since received a large importation of the following

RARE VARIETIES,

which we offer at the very low price of **$1.00 each, $12.00 per dozen**, with exception of two varieties, of which our stock is limited.

ACROPERA (new) from Venezuela; **CATTLEYA GIGAS, $2.00; C. MOSSIÆ** (extra large clumps) **EPIDENDRON GHIESBREGHLII, E. MACROCHILUM** (large pieces); **GONGORA** (new) from Venezuela; Gongora species not named; **LÆLIA AUTUMNALIS**, from different locality than former importation, entirely different style of growth, **$1.50; L. PEDUNCULARIS; LYCASTE LANIPES, MAXILLARIA FULVA, M. LONGRESSIMA, ODONTOGLOSSUM ALEXANDRÆ LEHMANII, O. LONDESBOROUGHIANUM, O. LEUTEO-PURPUREUM SCEPTUM, O. MACULATUM SUPERBUM, ONCIDIUM FORBESII, O. ROGERSII, STANHOPEA WARDII** (large clumps), Stanhopea species not named; **TRICHOPILIA SUAVIS** and others.

We regret to announce that our first importation of the beautiful **Lycaste Skinnerii** arrived in bad condition, unfit to send out. Also that our collectors have failed to obtain the much desired **Masdevallia tovarensis** and **Oncidium papilio majus**, but they have our orders for a large quantity of each of them, and if not received this season, we feel confident of their early arrival next year. We have yet invoices to arrive this autumn from Brazil, Guatemala, United States of Colombia and Venezuela and they may possibly be sent with these.

Benj. Reynolds, Supt. Barker Floral Gardens, Brambleton, Norfolk, Va.

CLEMATIS.

	doz.	100
C. Jackmanii (purple) two years	$5.00	$35.00
C. Lanuginosa Candida (white), two years	5.00	35.00
The above, one year	3.00	20.00

These are grown in pots. They are esteemed the **BEST** of their **COLOR** and are **PERFECTLY HARDY.**

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To Nurserymen & Dealers.

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20,000 Catalpa Speciosa, from 6 to 8 feet, for sale at **lowest prices.**

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Lady Washington Grape Vines.

SPLENDID PLANTS 6 to 8 feet high, at **LOW RATES**, also **WELL-RIPENED WOOD** of the above.

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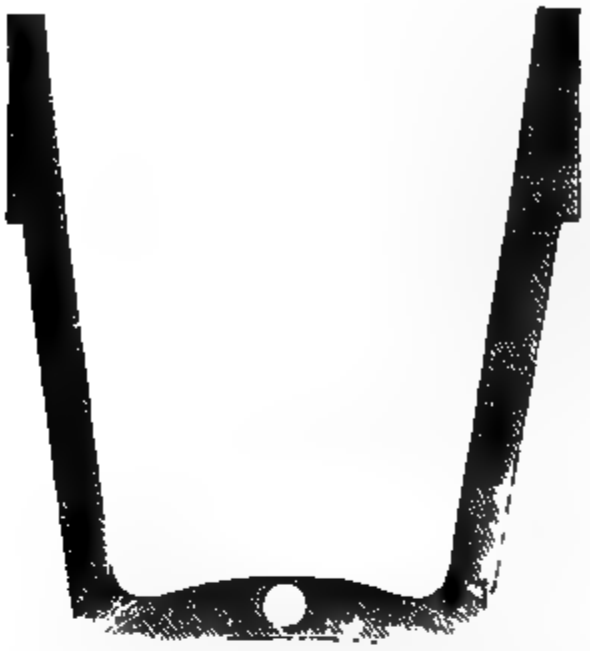

PATENT APPLIED FOR.

This pot has received the **UNQUALIFIED ENDORSEMENT OF LEADING FLORISTS.**

Having **three (3) holes** in sides at **equal distances and at angle with bottom of pot, perfectly free drainage and ventilation is insured.**

The **absence of hole in bottom,** as in the ordinary flower pot, prevents clogging of outlet, trouble from worms and decay of roots from want of proper ventilation.

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(Agents for J. E. JEFFORDS & CO.,)

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5,000 Cool Orchids for the People--Popularize the Beautiful.

Our Spring Importations of Mexican, Brazilian, Central and South American Orchids have arrived, from which we offer to send good plants, **as imported, not established,** at **50c.** each, **$6.00** per dozen. The small varieties can be sent by mail, but most of these only by express. We cannot guarantee these newly imported plants, but there is little doubt regarding their identity. They include among others the following: **Acinetas (or Peristerias) Barkerii and Humboldtii; Acropera Loddigesii, Arpophyllums giganteum and spicatum; Brassia verrucosa; Cattleyas citrina, intermedia, mossiæ** and others from Brazil; **Chysis lævis; Cyrtochilum maculatum; Epidendrums aurantiacum, myrianthum, odoratissimum, ono dioides, vitellium majus** and others unnamed from Brazil, **Laelias albida anceps, autumnalis, majalis; Lycastes aromatica and Deppei; Masdevallia maculata, Mormodes citrinum, Odontoglossums bictoniense, Cervantesii** (true), **citrosmum, cordatum** (true), **Insleyii, maculatum, nebulosum, Oerstedii** (new), **Reichenheimii, Rossii majus, Uro-Skinnerii; Oncidiums Barkerii** (or **tigrinum**), **bicallosum, incurvum, multiflorum** (or **altissimum**), **ornithorynchum, roseum** and others unnamed from Brazil, **Stanhopea oculata; Trichopilia tortilis.**

☞ See also advertisement of other Rare Orchids in another column. ☜

Established plants of those heretofore advertised in the GARDENER'S MONTHLY, at $1.00 to $5.00 each, as to size and variety; $10.00 and $25.00 per dozen.

Please order newly imported plants promptly, before they have made too much growth.

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Alfred Neuner.

We offer a **fine stock** of this **valuable winter-blooming plant** at the **following low prices:**

Plants 2½-in. pots, **50c.** each; **$3** per doz.; **$20** per 100.
Plants from open ground or 4 in. pots, **75c.** each; **$7** per doz; **$50** per 100.

Price List of New Plants and Catalogue mailed free to all applicants

Nanz & Neuner,

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WHOLESALE CATALOGUE OF LILIES

AND OTHER

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	1000.	100.
Lilium auratum, strong - -	$100.00	$12.00
" longiflorum, - - - -	50.00	6.00
" candidum, - - - - -	45.00	5.00

and other species at very cheap rates. Send for Wholesale Catalogue.

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Bulbs, &c.

For the Trade.

Fine patterns in **Straw Baskets** and **Rustic Work. Immortelles, Grasses, Mosses,** &c., &c.

Bouquets and **baskets** of **dried flowers** and **grasses** for the fall fairs.

A full supply of **Dutch bulbs, Lilies,** &c.

Apply for catalogue to the trade only.

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Catalogues free on application. Address,

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The best selling plant out. Splendid plants at the following low rates. out of 2 inch pots, $3.50 per doz., $25.00 per 100; 3-inch pots, $1.00 per doz., $35 00 per 100. A limited Stock of large plants at $6 per doz Also, fine plants of **Hydrangea Hort. Variegata** in 2, 3 4 and 5-inch pots, at $2, $3, $4 and $5 per doz **Begonia Rubra,** 3 and 4 inch pots, $2 and $3 per doz. Splendid lot of **Roses** in 2-inch pots, $6 per 100, $50 per 1000

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MEEHAN'S CATALOGUE

is arranged with this view. It is believed to embrace a **greater variety in one list** than any one **issued.** The **prices** are so **arranged** that those wishing to **purchase single plants** can **select** from the **list**; while the **prices per 10** and **per 100** are made **very low,** so that those who wish to **sell again** have a **large margin** to **work** on. **Prices** are also **made to suit** those who may order

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As an illustration of the plan of the catalogue, we offer in it for the first time the

NEW WEEPING DOGWOOD.

To suit **retail customers,** [the **price per single plant** is **$2.50**; for those who buy **10** or **more** it is at the rate of **$1.00** each.

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Fritillaria pudica, dry bulbs now ready 25c. each; $2.50 per doz.; Seeds 50c. per pkt. Hardy perennial, fine for forcing and pots.

Erythronium grandiflorum, beautiful golden, fragrant flowers. Dry bulbs 25c each; $2.50 per dozen; seeds 50c. per pkt. Hardy plants fine for forcing and pots.

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Astralagus Utahensis, fine gray-leaved dwarf plant, for edging and baskets; beautiful pea flower. Hardy plants, 25c. each; $2.50 per dozen.

Gilia agregata, fine scarlet border plant. Biennial. 25c. each; $2.50 per dozen.

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Heuchera rubescens white flowers, fine for rockwork. 25c. each; $2.50 per dozen. Hardy P.

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Stock limited. Orders accompanied by cash will be filled in strict rotation as they come.

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A great variety of **HOUSE, BEDDING and BASKET PLANTS by Mail or Express.**

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We offer a choice article at the following low prices.

Clean Seed, per bushel	65 cts.
Extra Clean Seed, per bushel	90 "
XXXX Seed, best, "	1 25 "

On board of cars or boat. Prices changeable. Address,

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Large Numbers

Will be furnished by the undersigned the coming season.

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FINEST IMPORTED CLUMPS, $8.00 per 100.

LILY OF THE VALLEY,

Finest selected blooming crowns, $16 00 per 1 000.

TUBEROSES,

Double White and Pearl.

Large, sound, blooming bulbs, first-class, $15.00 per 1,000.

The above will be READY FOR SHIPMENT about the MIDDLE OF OCTOBER All being first quality, I feel confident they will give purchasers entire satisfaction A few

SEAFORTHIA ELEGANS,

Fine plants, 1½ ft. high, $1.50 each.

CYCLAMEN PERSICUM,

Bulbs 1½ to 2 inches diameter, $1.25 to $2.50 per dozen.

SAFRANO ROSES,

Two years old, strong and healthy, 4½-inch pots, $12.00 per 100.

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Undoubtedly the finest Golden Foliaged Bedding Plant yet introduced.

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	Each.	Doz.	100.	1,000
Brighton, 2 years, very strong,	$ 50	$3 50	$16 00	$80 00
" 3 "	75	5 00	11 00	
" 1 " 18 in. to 2 feet, Ripe Wood	35	2 00	8 00	70 00
Moore's Early, 1 year, very strong, well-rooted	50	3 50	15 00	100 00
Moore's Early, 2 year, very strong, well-rooted	75	5 00	20 00	
Agawam, Wilder, Walden's Champion, Iona, Senasqua, Roger's, etc., 2 years	35	2 00	10 00	80 00
Lady, 1 year, strong, well-rooted	50	4 00	15 00	100 00
" 2 " " "	75	3 00	20 00	
Dutchess, New White Grape, excellent, 1 year, very strong, 5 to 8 feet, ripe wood, 9 in. pots	1 00	8 00	50 00	
Lady Washington, Prentiss, Pocklington, Jefferson, 1 year, very strong, 8 feet, ripe wood, 9 in. pots	1 00	9 00	70 00	
No 2 plants of above 4 varieties	75	6 00	40 00	
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No 2, plants of above	1 50			

The New Kinds will be cut back to buds 8 to 10 inches.

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Every fruit grower should grow the Blueberry for market. It is adapted to all soils; succeeds on high and low ground; yields 150 bushels to the acre. I will furnish high and low bush Blueberry Plants for $1.00 per dozen by mail; $3.00 per 100, $15.00 per 1000 by express

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SPECIAL TO THE TRADE.

	Per doz.	Per 100
Begonia Schmidti. New	$1 25	$10 00
Bouvardia Davidsoni and Elegans, 4 in. pot grown, strong	1 25	10 00
Dracæna terminalis, 3 in	2 50	15 00
" " 4 in	3 50	25 00
" " 5 in	5 00	40 00
" " specimen	10 00	
The Dracænas are in unusually fine condition, well furnished and colored.		
Fern—Pteris cretica albo lineata	1 00	6 00
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" Grand Duke of Tuscany	3 00	
Pandanus utilis, splendid, in 4 in. pots	3 50	20 00
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" Seaforthia Elegans, 1st size	1 50	12 00
" " " 2d size	3 50	25 00
" " " specimen	12 00	
Roses, Hybrid, Teas, Bourbons, grown in 4 and 5 in. pots, splendid sort	2 00	15 00
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Of Peach and Apple Trees

AND OTHER FRUITS, among which can be found varieties suited to all sections. A long list of long-keeping Apples. Kieffer and La Conte Pears, Grapes, Raspberries and Strawberries in large or small lots. I also offer a full line of Nursery Stock at low rates. Apples, Peaches, Kieffer and LeConte Pears sent by mail.

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Catalogues, showing how and what to plant, with much valuable information, mailed gratis to all who apply for them.

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Apple and Plum Stocks.

I offer for sale this fall a fine lot of No. 1 and No. 2 Apple and Plum stocks, also Plum in dormant buds. Osage hedge plants No. 1 at $1 50 per 1000.

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AND

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Edited by THOMAS MEEHAN.

Vol. XXIII. OCTOBER, 1881. Number 274.

FLOWER GARDEN AND PLEASURE GROUND.

SEASONABLE HINTS

It is very much to be regretted that landscape gardening as an art, is not more generally understood, as some attention to what it teaches would increase many-fold the pleasures of gardening. It would be to the interest of gardeners and nurserymen to study this art more than they do, as one of the means by which the profession is elevated. They have not only to supply the wants of the community, but be educators as well. Gardeners too often have reason to complain that society takes little note of them. It is often very difficult to make even an intelligent person see the difference between a mere cow boy and an intelligent gardener, and many a good fellow comes back from an interview with some one "who wants a gardener," with a heartburn and feeling of shame at the questions put to him. There are many ways by which these slights may be remedied, and one of them is to show by actual intelligence what one really deserves. Landscape gardening intelligence would especially assert itself. This does not merely consist in making expensive lawns and drives; it also takes in the most judicious arrangements on the smallest places, and the wise expenditures of small sums, as well as the generous use of large ones. Everywhere through the country we see the evidence of a desire to have nice gardens and grounds, both by persons of limited means, and by those who have much to spend, and the want of intelligent guidance seems to us more apparent than any other want. In a vast number of cases that we have seen this year, the "landscape gardening" seems to have extended no further than in sticking in a few poplars or maples, or scattering Norway spruces or white pines about, just wherever a hole could be found for them. One might just as well follow the old advice to throw out a bag full of stones, and put in a tree where each stone fell. It would really have a much better effect than much of modern planting results in.

In preparing the grounds, it should be remembered that the grass and trees are not only required to grow therein, but that they must grow well. The top soil of the lot is often covered by the soil from the excavations, trusting to heavy manuring to promote fertility. But this is a too slow and expensive process. The top surface soil should, in all cases, be saved and replaced over the baser soil. Also, where it is necessary to lower a piece of ground, the top soil should be saved to place over again. The depth of the soil is an important matter, both for the trees and the lawn. It should be at least eighteen inches deep. In shallow soils grass will burn out under a few days of hot sun. In a soil eighteen inches deep a lawn will be green in the driest weather. For the sake of the trees, also, the ground should be not only deep, but rich. If from thirty to forty loads of stable

manure to the acre could be appropriated, it would be money well spent. Life is too short for it to be an object to wait too long for trees to grow, and planting large ones is an expensive, as well as unsatisfactory business. A tree in a rich and deep soil will grow as much in one year as in five in a poor one. So in preparing a lawn, it is fortunate that while aiming at the best effects, we are helping our trees also. It is generally best to sow for a lawn than to sod, where much of it has to be done. The edges of the roads must, of course, be sodded, the balance neatly raked over and sown. The best kind of grass to be employed in seeding is a disputed point, and it will, no doubt, depend in a great measure on the locality. Philadelphia and northward, the perennial rye grass is excellent. It commences to grow very early, and has a peculiarly lively, shining green. South of Philadelphia it is very liable to get burned out in summer, and the Kentucky blue grass would be much better. It is much the best to have but one kind of grass for a lawn, provided it is suited to the locality. A mixture of kinds is apt to give a spotted and variegated character, not at all pleasing. Some people like to see white clover growing thickly in a lawn, and others object to anything but green. However, if a good grass-rake is employed freely in summer time, the heads of these flowers may be kept from expanding. Where there is a prospect of a month of growing weather, lawns may still be sown with grass seed,—the clover, where used, to be kept for sowing in April or March next. A small quantity of rye should be thinly sown with the grass, which, by the shade it affords, will prevent the grass from being thrown out by the frost. The rye must, of course, be closely cut in the spring, to allow the grass to get ahead of it. Planting of deciduous trees and shrubs may be proceeded with this month to great advantage, and next month well sheltered from cold winds, wherever the winter is not likely to be very severe. In cold, bleak spots, or where the temperature is likely to be below 15° above zero, planting had better end with November. The risk of loss from fall planting, even in unfavorable places, is much lessened by severe pruning or shortening in.

When the leaves have fallen, many will commence pruning. Properly, summer is the right time to commence pruning; the winter should be the time the job commenced in summer should finish. The object of pruning in the winter season is to impart vigor to the tree, or to cause branches to push next season strongly and vigorously in such parts as it may be desirable to have them. A tree which is already growing very vigorously, and is shaped according to our best wishes, can receive no advantage from pruning now. Any branches that cross each other, or that are otherwise misplaced, may, however, be cut out. Any trees that have arrived at maturity, and have some parts apparently weakened or decaying, should, on the other hand, have a thorough overhauling now. All scars made by the sawing off of any of the larger branches, should be painted over to keep out the damp, and to preserve it sound till the new bark shall grow completely over it. This is a very important matter. Many fine trees are prematurely lost through this neglect. The wood decays, water enters, and the tree soon becomes hollow and worthless. We always use paint, but others use gum-shellac dissolved in alcohol, a bottle of which they always keep on hand, ready for the purpose.

This is also a good time to cut away any trees that it may be desirable to take down. When a place is first planted, many common trees are set in with the choicer ones, with the design of taking them away as the better ones grow. These, when becoming thick, should be gradually thinned out.

Hedges, also, will need attention. Those a year planted should be pruned where it is desired to make them shoot vigorously and freely. Older hedges that have been pruned properly in summer will need little now besides trimming slightly to preserve their desired shape. If an old one is in such a condition that it seems to require a good winter pruning, it may be set down as good for nothing, and not worth further attention. The better plan would be cut it down to the ground and let it shoot again for a better summer treatment in future. It is very important that no weeds or litter of any kind should be left near hedges. Under such protection mice harbor, and feed on the plants, often to the utter destruction of the hedge. Those who keep their hedge-rows clean, never, so far as our observations go, suffer from mice. The clippings of hedges and small prunings of hedges may be put to a very good use in improving the soil. Underdraining is now universally admitted to be one of the best means of permanently improving land. Where tiles cannot be conveniently had, small stones or similar

waste rubbish may be thrown in the bottom of the ditches, and over these loose materials the prunings of the season placed thinly, but firmly, before throwing in the soil. They keep the soil out of the drainage, and, as they decay, absorb a great quantity of moisture, which, in a dry time, gives off a great portion again to the dryer soil. Even where tile are used, they may be employed to advantage.

COMMUNICATIONS.

RARER ORNAMENTAL TREES AND ORNAMENTAL GARDENING.

BY SAMUEL PARSONS, JR.

(Prize Essay for Massachusetts Horticultural Society.)

(Continued from page 261.)

Let us look at a few of the varieties that may strike us as specially noteworthy. First, and perhaps most popular comes Acer polymorphum sanguineum. Its main attraction is the solid, rich red, or purple that dyes the leaf; otherwise it is simply solid and vigorous for an extremely dwarf tree. The sanguineum variety performs very much the same ornamental part among shrubs as the purple beech does among trees, with less shining lustre and more richness of hue. Surely I could not give it higher praise. Nearly related in appearance, and yet very distinct from sanguineum, is Acer polymorphum atropurpureum. The tints of its leaves are darker, and perhaps duller than those of sanguineum, but it has a taller, more picturesque habit and is better and more artistically suited for growing in pots or tall vases for interior decoration. We have yet to put in practice the extreme aptitude these Japanese maples have for room and window decoration during February, March and April: They burst into leaf, as it were, in a moment, and exhibit a refined and exquisite effect in keeping with the decorations of the most dainty boudoir. In mentioning these varieties of Japanese maples, I must not forget the original species, polymorphum, which grows better than many of its varieties, and is only less exquisite than the best of its offspring. Indeed, though the prevailing color of its leaves is green, it often throws out sports of pink, yellow and white, thus illustrating afresh its erratic tendency,—that tendency which has enabled Japanese cultivators to display their horticultural ingenuity in perpetuating so many attractive varieties by skillful grafting. There are white variegated forms of polymorphum like albo-variegatum, and a beautiful crimped leaved kind, delicately shaded and tipped with rose. It has more or less of the white and yellow color of the last. Then there is versicolor of larger habit, and sharper, longer leaves, white and rose tipped. Reticulatum has light green translucent leaves, crossed with light colored lines, which give it a distinctly veined appearance. Polymorphum offers us weeping forms as well as dwarf forms, but most curious of all, are two or three cut-leaved kinds. The green palmatifidum is the simplest variety of the cut-leaved type. Not remarkable for peculiar color, the leaves are cut into a semblance of coarse lace; curious, weeping and graceful. No more delicate weeping tree exists than these palmatifidum and kindred forms. After a slow growth for a dozen years, perhaps, these miniature trees begin to droop in long, sweeping folds. When the green becomes purple, as it does in Palmatifidum atropurpurem, Dissectum atropurpureum or ornatum, which are one and the same varieties (for dire confusion in catalogue names exists here), the effect is still more charming. In pinnatifidum and pinnatifidum atropurpureum the effect is even more unique, because, though quite as cut-leaved, its divisions are yet simpler and more elegant. Dissectum foliis roseo-pictis is fairly shred-like in its fine divisions, and in addition has a variegation consisting of pink, yellow, white and green. Strange to say, the apparently delicate narrow-leaved forms like roseo-pictis, endure burning suns better than the broad-leaved kinds.

All Japanese maples heretofore mentioned, have been of the polymorphum species, and indeed, polymorphum maples, with two or three exceptions, are practically the only Japanese maples we are able to obtain for the lawn. One of these I shall note now, and another when I consider new and rare deciduous trees. The maple I now propose to examine is Acer Japonicum, medium sized, with vigorous, splendid leaves. To me these leaves seem only surpassed among Japanese maples by those of its golden variety. Japonicum has bright green leaves, ridged and crinkled, and of solid texture. A special beauty of this variety lies in its flowers. They are long, pendant and pink, more striking in every way than those of the scarlet maple. Still, perhaps the most charming of all Japanese maples is Acer Japonicum aureum. Although a variety of Acer Japonicum, it is very different.

The leaves are rounder, and the lobes of the leaves smaller and less deeply cut. Nevertheless they are almost large for a medium sized tree, and in color most delightful. Rich, pure gold mingles here with faint suffusions of green, thus producing the most subtile and delicate variations of color on the same leaf. I should like to speak still farther of Japanese maples, but the claims of other new ornamental plants must have their turn now. Let us give our attention, therefore, to a brilliant cluster of flowers growing on a curve of one of the paths near the house, a path that winds down gently towards the gate. It looks, indeed, charming, thus situated on a slope of green, for it is a group of Azalea mollis. You may reasonably ask why speak of azaleas, even hardy azaleas, for, as a class, they are by no means new or rare, although, perhaps, excelled by no hardy shrub for exquisite color and other goodly qualities. Azalea mollis, however, is hardly an azalea in the ordinary sense of the term. It is, moreover, Japanese, and of recent introduction, as introductions go, for a new plant really ought to have ten or fifteen years to obtain a positive foothold on American lawns. The flowers are the chief attraction of Azalea mollis, as, indeed, they are of all azaleas. At first glance they seem much like those of the hardy or Ghent azalea, only very much larger and more showy. On closer inspection, however, we recognize also a considerable resemblance to the rhododendron. The clusters are nearly as large as those of that plant, and the corollas are not unlike it in shape. But the color and texture of the flower mark it an azalea in the fullest sense. The color, indeed, is much deeper and richer, but it shows the same shades, salmon, pink, orange and scarlet. The question, of course, presents itself, why do not these azaleas take the place of all other hardy azaleas? Simply, because nothing choice in nature can have its place exactly filled by anything else. These Azaleas mollis, you will notice, are arranged in a group by themselves, and in a somewhat sheltered well-drained spot. They are liable, because they bloom very early, to have their blossoms destroyed by late frosts. While young, too, the wood is sometimes winter-killed. The ordinary hardy azalea, on the other hand, is surpassed by few shrubs in capacity to endure various exposures. Specimens of Azalea mollis are planted together *en masse*, because of their showy appearance. It would be hardly fair to group them about the outskirts of rhododendron groups in the manner so effectively employed with hardy or Ghent azaleas. Seeking out more especially Japanese deciduous shrubs for the moment, we note, clustered in a retired corner, a little group of Daphne genkwa. Although by no means striking plants, they have a refined, quiet beauty that grows on one. They are slender and upright, growing with numerous long, downy twigs which, in early spring before the leaves appear, are garnished with violet-colored tubular, dainty-looking flowers rather less than an inch long. This plant seldom attains a height of more than three feet.

(To be continued.)

BERMUDA GRASS.

BY PROF. S. B. BUCKLEY, AUSTIN, TEXAS.

This grass will not keep green during the winter in places subject to frost, especially if the surface of the ground be slightly frozen. Nor can it be successfully cultivated where the ground freezes to the depth of six or more inches. Where the climate is warm enough to cause it to thrive, it will soon take possession of the ground. It can be destroyed by repeated ploughings during winter.

In dry, sandy soil it can be made useful for pasturage because it yields well, if not killed by the droughts of summer nor close feeding, hence poor sandy and almost barren lands at the South, if planted with Bermuda grass can be utilized for the keeping of stock, especially sheep. In Austin it is used for lawns, but during cold winters it gives little or no greenness.

ELLERSLIE.

BY VALENTINE BOURGEVINE, KINGSTON, N. Y.

"If any one wishes to see what art combined with nature can produce, he has only to take a short excursion to the park of the late Hon. William Kelly, near Rhinecliff, and enjoy himself to the fullest extent. The moment a person enters the gate of these unsurpassed grounds his attention is called in every direction. The scene takes instant hold of a person's mind, not leaving him time to think of anything except of this elegant monument which William Kelly erected to make his name immortal. The paths, smooth and clean and gracefully curved and bended; the beautiful lawn, like a carpet, together with the elegant flower beds, which show so naturally and to the best advantage, nothing appears to disharmonize the entire arrangement. The centre bed, with a magnificent vase in the centre, looks like an emperor in his "ornat," surrounded by the noblest children of Flora.

The majestic magnolias, together with the other large varieties of flowers, fairly fill the air with their luxurious fragrance. The costly vases are placed with skill, and filled with the rarest and most beautiful flowers and vines, and are situated most advantageously between fine specimens of evergreens and flowering trees.

"In crossing the grounds you come to an endless looking lake, which is made the more picturesque by its beautiful surroundings and a small steamboat. The pond is crossed by an elegant bridge leading to a distant part of the park. Lovers of nature and art can hardly see a purer and nobler representation of landscape in the United States,—so pronounced by the most competent authorities from abroad,—who have come to enjoy this Mecca of art.

"The endless beauties of this park, the paths, the lawn, the rolling ground, the skilful plantation of magnificent trees,—a combination which could scarcely be surpassed—is the work of its skilled superintendent. In front of the mansion there is presented one of the handsomest views in the world. Besides the surroundings of this grand place, looking towards the south the cities of Poughkeepsie, Newburgh and all the villages between the places that line the river away down to the Highlands, which are thirty-five miles distant, and looking towards the north, whole ranges of the Catskills, with all their magnificent summer resorts, are spread out before the beholder in delightful panorama. Comfortable seats are placed all over the grounds, whence all their beauties can be observed and admired. Large palms where the zephyrs can play with their fans; a century plant now almost done blooming, and an exquisite temple are objects of admiration. Numerous birds and squirrels, which are strictly protected and enjoy an undisturbed and happy existence, enliven this park.

"A very cunning little tale was whispered in our ears; namely, Flora descended from Olympus, and erected her throne in this temple, and held her midnight reviews over her beloved children. The workmen hearing of this, combined together to endeavor to catch her, and approached from all directions, and just as they were about to lay hold upon her, she turned into an elegant alabaster urn, which stands there yet. On entering the plant, grape and peach houses, one will in the first place find plants of the whole known world, from orchids down to geraniums—all cultivated to specimen plants, flowers, as well as the most brilliant leaves. Beautiful grapes, red, white and black, of immense size, reminding a person of the Palestine grapes, where two men were needed to carry on a stick one bunch on their shoulders; peaches, luxuriant and large, finer than out door ones. All this together with the fruit and vegetable departments, comprises a rare and perfect skill of horticulture and a most accomplished model of gardening.

"Mr. John Peatty, the superintendent of this institution, is always ready to show and explain to visitors who take an interest in this noble and useful art of gardening. While we thank Mr. Peatty for his politeness, we take this opportunity to say he is a gentleman of rare talent; not only in horticulture, but in every other subject that was broached, he seemed to be well versed. Inside we were all taken up by the beauty and grace of this great—if not the greatest—park in the United States. Certainly any one who comes to the shores of our beautiful Hudson should not fail to take a look at these celebrated grounds. They are thrown open by the kind owners for inspection to all classes of visitors."

[The above sketch of this very pretty place was originally contributed by Mr. B. to the *Rondout Courier*. In addition to the notes above given Mr. B. says: "A large Magnolia Soulangeana was for the second time in full bloom on that occasion."—Ed. G. M.]

EDITORIAL NOTES.

NYMPHÆA TUBEROSA.—The writer had for the first time the opportunity of examining this water lily, during a hasty call at the home of Dr. Warder at North Bend, Ohio, and was pleased to find it much more distinct from other species than the description in our text books indicates. Dr. Warder has a pond in which many kinds are growing, thus affording an excellent opportunity for noting comparative differences. Wood thus describes it: "Rhizome producing oblong tubers, which spontaneously separate; leaves floating, orbicular, reniform, entire, very veiny, the lobes divaricate, flowers scentless or nearly so; milk-white, never purplish, petals very blunt, seeds globular ovoid."

In addition to this it was noted at Dr. Warder's, that the leaves were green on both sides, and not tinged with rose on the under surface as the common water lily is, that the leaves are wider than long, and are emarginate at the apex, that the edges turn up from the water in many cases as the Victoria Regia does, and that a large number erect themselves above the water as we see often in Nuphar and Nelumbium. The petals are more numerous, larger, and narrower than in the common one. The immense size of the flower, and other points noted, might seem to form a connecting link between the famous Victoria of the Amazon, and the Northern Nymphæas.

FUCHSIAS AS BEDDING PLANTS.—People generally regard these as poor bedding plants, and they usually are. They are nice during the spring time, then red spider comes and the end

is near for the season. Near Lexington, in Kentucky, during a hot August day, when the celebrated "Blue-grass" of that region was of a coffee brown, and the corn-fields looked as if a fire had swept over them; when even the hemp might have lost its green color, only that it seemed to make an extra effort, in view of its probable needs in a Washington jail, the writer saw one of the old kinds of twenty years or more ago, with hundreds of bright crimson flowers, and hundreds of healthy green leaves, in an old soap box by an humble cabin door. It must have been over two feet high, by one and a-half across. It evidently knew the hands which fed it, and was grateful for it all.

COLEUS THOMAS MEEHAN.—We have had but a poor idea of this variety, as a good bedding kind, but as seen in the garden of Mr. Blair, at Belvidere, New Jersey, in the hands of Mr. Walter Coles, the excellent gardener there, it was one of the most effective we have seen. As a man is known by the company he keeps, it is evident "Thomas Meehan" was quite charming in the good company Mr. Coles had gathered together about him. Mr. Coles was proud of his success, and he had a good right to be.

CATALOGUE OF ROSES.—Mr. Shirley Hibbard has done a remarkably good deed for the Rose grower. In his *Gardener's Magazine* of July 9th, he gives a full catalogue, with originators names, class, year of introduction, color, and habits, of all introduced during the past fifty years. The whole number is 1274. One might well ask, how many are popular to day?

BEDS OF COLEUS.—Many of the art critics are contending that there is no beauty in Mosaic beds, and masses of various colored coleus grown together. This may be all true from an artistic standpoint, but in traveling through the country now, and remembering what travel was a few years ago, one cannot but be thankful for the change. Railroad stations and cottage fronts, at one time as sombre as church-yards, are at least warm and gay now, and this is a great gain.

NEW AND RARE PLANTS.

NEW HARDY PLANTS AND SHRUBS.—Among the novelties announced by Messrs. James Veitch & Sons are the following:

Cydonia Japonica nivalis. This is the purest white variety of the well-known Japanese quince —the *Pyrus japonica* of gardens—yet obtained. Its flowers are somewhat larger than those of the Cydonia generally cultivated as the white variety, but its greatest recommendation consists in its blooms retaining their pure white color during the whole of the flowering season, and under all circumstances; while those of the old C. japonica alba acquire a pink hue with age.

Eucryphia pinnatifolia. A remarkably distinct and handsome shrub, introduced by us from Southern Chili. It grows from eight to ten feet high in its native country, and is furnished with smooth glossy green pinnate foliage, which forms quite a distinguishing character of the plant, each leaf consisting of five ovate toothed leaflets about an inch long. The flowers much resemble in form those of an Hypericum, and are pure white to which the very numerous bright golden yellow anthers are a pleasing contrast. They are about two inches in diameter, and are produced freely in clusters in the axils of the leaves.

Juncus zebrinus. This striking novelty is thus described in *The Garden*, vol. xxi., p. 336, where a wood-cut of the plant is given:—"The zebra-striped rush is apparently a form of our native species. Like the zebra grass (Eulalia japonica zebrina), it originated in Japan, and has reached Europe by way of America, and has been introduced by Messrs. Veitch. It is a striking plant when associated with others, as its peculiar rigid habit of growth and singular markings stand out in bold relief." A wood-cut is also given in the *Gardeners' Chronicle* for 1877, p. 399, with the editorial remark that "The plant is variegated as few plants are, viz.: in the form of rings of yellow color, alternating with similar rings of green. It is likely to be a favorite as the variegation is distinct, the plant hardy, and the culture of the simplest." It is a very desirable plant for the margin of ornamental water, and other places suitable for bog plants.

Magnolia Soulangeana nigra. This is a fine introduction, belonging to the M. conspicua section, and perfectly hardy. The flowers are very like those of the hybrid, M. Soulangeana, but easily distinguished from them by the rich purplish tinge that pervades the coloring of the outer surface of the petals; it is the darkest-flowered magnolia in cultivation. Like M Soulangeana, the flowers appear in early spring in advance of the leaves, and at that season it is one of the most conspicuous, and it is one of the grandest of garden ornaments.

Magnolia stellata. An exceedingly beautiful

and very interesting addition to our hardy flowering shrubs. It is a small tree or shrub with deciduous foliage, the leaves being variable in size, from two to five inches long. The flowers are from three to four inches in diameter with rather narrow stellate petals of pure white, and very fragrant. The flowers are produced freely when the plant is quite young, or only a foot high; M. stellata is thus a most suitable subject for pot culture, and as the blooms appear early in spring but little forcing is necessary to develop them at a season when flowers are always in request. We received it from an American firm under the name of M. Halleana, and as such was awarded a first-class certificate by the Royal Horticultural Society, and a certificate of merit by the Royal Botanic Society.

SCRAPS AND QUERIES.

BLUE CHRYSANTHEMUMS.—"B.," Natick, Mass., writes: "I notice in the GARDENER'S MONTHLY for August, a paragraph on the Blue Chrysanthemums, and I think you stated that some had been introduced into this country. Can you give me the address of any one having them so that I may get some? By so doing you will confer a favor."

[They have not been introduced yet or some one would advertise them in our columns.—Ed. G. M.]

THE BOSTON PUBLIC GROUND.—"J. B.," Fredericton, N. B., writes: "You say, p. 253, 'never mind the fine writing; tell us what you know in the fewest and plainest words you can think of. It will all the better suit us and most of our readers.' I like these words because they suit my taste and schooling. I have read or dreamed of a minister who used to say, 'he no more durst use fine words than he durst dress in a fine suit,' his motto was 'save all you can, and give all you can to charitable purposes, including the widow and fatherless.' I think the most successful teachers, secular or religious, are men who use the plainest words. We have a good paper here, *The Farmer*, mostly devoted to agriculture, but the reading matter is mostly clippings from American papers. The editor cannot get farmers to tell anything they know, because they have not fine words, yet many of them are successful cultivators, situated along the St. John's River. I, for one, with many more of the MONTHLY readers are very willing to sit on the footstool, and give all honor to our superiors in theory and practice. I am willing to own my ignorance, in not having received a classical education. We desire, therefore, with our superior and esteemed editor, correspondents to give plainness of speech, so that the learned and the unlearned may understand, when they endeavor to enlighten us through the medium of the GARDENER'S MONTHLY. I may just here thank those lady contributors for their paragraphs, and am always interested in what they say; they have a simple way of putting things—child-like and teachable. I am not presuming to teach this time, but am an inquirer. Would Mr. Douge, who, I understand, has charge of the Boston Public Garden, or some correspondent, give a short sketch of the shape of beds, the kind of material used, color of flowers and leaves, and how they are arranged in the beds? My reasons for making these inquiries are, a gentleman here of means, who visits New York and Boston yearly, possesses an Eden of beauty, in summer especially, and beds out some fifteen thousand plants, more or less, speaks of the Boston Public Garden as praiseworthy. The same gentleman terms me his gardener, therefore I kindly ask for this information. I have no doubt it would be instructive and interesting to others, who are situated as I am with neither spare time or means to go so far to see it."

GREENHOUSE AND HOUSE GARDENING.

SEASONABLE HINTS.

In many places arrangements are now made for growing plants for cut flowers. There are benches for holding the plants which are grown in the earth, and not in pots. In some instances plants are grown in these beds all summer, the glass being shaded from the hot sun. This is especially the case with young roses from which flowers are desired in the winter, and also with Bouvardia—but sometimes, and indeed generally, the plants are grown in the open ground—

and, at this season, carefully lifted, and placed in the beds of earth prepared for them. In lifting them, great care has to be exercised to keep them from wilting, for, although the drooping heads will usually come up again, it is always at some loss to the future well-being of the plant. To prevent wilting, it is best to take up the plants after a soaking rain, so that the earth will adhere to the roots in a little ball, and especially to keep the glass of the house as dark as possible for a few days. It is light, quite as much as a dry atmosphere, which takes the moisture out of a transplanted plant. Carnations, Bouvardias, Roses, Callas, Heliotrope, and Mignonette, still continue to be the great stand-bys of the cut-flower men, though all sorts of specialties, as "fancies," are continually coming up. Last winter there was quite a run on various kinds of common European Chrysanthemum, or "Dasies," as they are commercially called. The various forms of the Chrysanthemum tricolor, were especially much sought for. Many plants that have been turned out of pots to pasture in the open air during summer, will have to be repotted during the month of October.

In taking up things from the ground for potting, care should be taken to have the pots well drained with pieces of potsherds over the hole. The more rapidly water passes through the soil, the better plants will grow. Pots could be made without holes, and the water would all go through the porous sides in time; but that is too slow a way, so we make a hole to admit of its more rapid escape, and we place the broken pots over the hole to make a vacuum, which assists the object of the hole. In very small pots, or with plants which have strong enough roots to rapidly absorb all the moisture they get, and speedily ask for more, "crocking" is not necessary.

There are but few things in the greenhouse that will require special treatment at this time. Camellias and Azaleas, as they cease to grow, will require less water; but it is now so well known that moisture is favorable to growth, and comparative dryness favorable to flowering, that we need do no more than refer to the fact.

Bulbs for flowering in pots should be placed at once. Four or five inch pots are suitable. One Hyacinth and about three Tulips are sufficient for each. After potting, plunge the pots over their rims in sand under the greenhouse stage, letting them remain there until the pots have become well filled with roots, before bringing them on to the shelves to force.

COMMUNICATIONS.

A VISIT TO JOHN SAUL'S NURSERY.

BY S.

Finding that I would have to stay in Washington on a hot night in August, I gladly accepted an invitation from my friend, Mr. John Saul, to drive out to his nursery and stay over night with him, where it would be cooler. This alone would have been incentive enough, but I was anxious to see again the fine Crotons, Ferns and Dracænas that have been so much admired at different exhibitions. Mr. Saul's place, I should judge, is about three miles from Washington, on the Seventh street road. On going there we passed the Soldiers' Home, which is to the right of the road as you drive out. I do not know how much land Mr. Saul has, but should suppose somewhere in the neighborhood of a hundred acres. The hot weather and short visit allowed me to see but a small part of what was worth seeing. A noticeable feature in his nursery and greenhouses is that though he is up with the most advanced in the novelties of the day, he holds on to many good old plants, which he says are sure to come up again. I think I saw in the few hours I was there more of my old friends of some twenty years ago than I had seen for a long time. I find that Mr. Saul beds out a great number of hothouse plants in the open ground. Certainly no plants could have done better, besides the great saving of labor in watering. The rather new and beautiful Tabernamontana Cammasa was in full bloom, and Antigonum leptopus was rambling about as freely as it did when Dr. Seeman found it. As I took no notes at the time, I cannot recall the many plants that are handled this way. He also beds out his Amaryllis in the summer, and I saw a block of probably one-eighth of an acre doing finely. He also seems to have Eucharis Amazonica completely under control, and grows it out of doors in summer in pots, for cut flowers. Every pot had one or more spikes of bloom, and more than a half peck of flowers were cut and taken to the city of Washington for high-priced bouquets, the day I was there. Another plant grown largely by Mr. Saul for cut flowers is Stephanotis. I think he has the whole of one side of a house covered with it planted out, and giving abundance of beautiful trusses. With such flowers as Stephanotis, Eucharis, Tabernamontana, and plenty of the choicest rosebuds, and at times orchids, Mr. Saul can get up a bou-

quet even in the hot August days fit for any lady in the land. It is hard to tell how many greenhouses and pits he has, for they are dug into the sides of the hills, or on the level to suit the different plants grown. As I passed blocks of azaleas, roses, geraniums, camellias, and many other plants, I was obliged to ask Mr. Saul where he would winter his immense stock. He said he would get rid of a great many by his fall sales, and the rest would go in somewhere. Having had some experience in putting plants back after a summer growth out doors, I do not envy him his job. He finds the new California lilies somewhat difficult to manage. They will not all bear the same treatment; some like moist land and others dry loam.

The weather was too hot to enjoy the greenhouses, but early in the morning I took a look at the Crotons and various foliage plants. Every leaf perfect and well-colored. They require great attention at all times to grow them as he does, and a house to themselves, for I am sure few plants could stand the moist heat that they get. Mr. Saul to be up with the times has gone into orchid culture, and is importing direct from Mexico, Central America and the East Indies, and elsewhere. Though he has only been handling orchids a few years, he seems to be getting along finely, more especially with the East India kinds. Dendrobium formosum from twelve to fifteen inches long and as thick as your finger; D. Pierardii three to five feet long. D. fimbiatum oculatum, D. tortile and many others making the rankest growth I ever saw, oftentimes double the size of that made in their own habitats. Mr. Saul says that Dendrobes do best with plenty of heat, and the house saturated with moisture when growing, gradually dried off after they have made their growth, and then kept cool and dry with plenty of light during the winter months. He told me Dendrobes that could stand from 90° to 100° in the summer, were not hurt (if properly dried off) even if the thermometer fell occasionally to 40° or 45° in the winter. His place seems a little out of the way, but if a lover of fine plants will drive out there and catch him as I did with a lazy day on his hands (which is not often), I think he will be well repaid for his trouble. He has all the new fruit as fast as it comes out, and gives it as good a test as he can before he recommends it. He is bringing up a couple of his sons to the same business, and I hope they will have the same love for flowers that he has.

EPIDENDRUM BICORNUTUM.

BY A. J. E., SOUTH AMBOY, N. J.

This is a remarkably handsome orchid, growing fifteen to eighteen inches in height. It is rather a difficult plant to grow, and I believe by all considered a miffy character, although with me it thrived under treatment of an ordinary kind. It requires a tropical stove temperature, with an abundance of water at the root and overhead while growing. Peat and sphagnum moss and a little charcoal suits it well; it does best in baskets made of wood; it also does well on blocks of wood, but I find in this country baskets are the best, as the plants seem to suffer if they once get dry, and a check to the growth of this orchid is its ruin. It blooms in early spring, lasting six or eight weeks, producing as many as twenty flowers on a spike, pure white with a few crimson spots on the lip. It much resembles Phalænopsis amabilis, but it differs very much from that grand orchid, as it only expanded two or three of its flowers at a time. It is a native of Guiana.

CHOROZEMA, THEIR TREATMENT, &c.

BY JOHN WOODING, BRANCHTOWN, PA.

These are some of the most beautiful and interesting plants of the New Holland genera, and most of the species are well worth cultivating. The following account of the method of growing and flowering is from practical experience. Propagation is generally done by cuttings in spring when the young shoots have made wood about an inch long. The shoots intended for cuttings should be taken off with a sharp knife, with a small portion of the old wood attached generally termed "a heel," with as few leaves taken off as possible. Insert the cuttings in pots half filled with broken crocks, over these place a little moss to prevent the soil getting into the drainage. Fill the pot to within an inch of the rim with a mixture of peat and sand, then fill it up with pure sand The cuttings are inserted about half an inch apart, leaving room for a bell glass to cover them. Water them slightly with a fine rose to settle the sand about them, and then plunge them over a little bottom heat. The glass should be wiped every morning if damp. Water when required with a fine rose. Take care to keep the sun off them, else your former labor will be in vain. They will strike in a very short time, and when well rooted into the peat, pot off into two inch pots and shift as often as required. The soil I prefer for pot-

ting, is two parts good turfy peat, one of decomposed cowdung, and one of sand and charcoal. These are well mixed together, but not sifted. I dislike sifted soil for all pot plants; I use it as rough as possible, for if the soil is open and porous, the plants will then thrive better, growing strong and healthy. If it is close, they will not be so healthy.

The flowering season of the Chorozema is from January to the end of March. I prefer shifting them as soon as they are out of flower. I give them a large shift, and plenty of drainage, using oyster shells and charcoal with a little moss over the charcoal. After potting them, give the plants a good watering, soak the soil well through. I give the large leaved specimens plenty of weak manure water through the summer months. Great care in watering is requisite in the autumn, as the plants are then in a state of repose; if it is not done carefully the roots will rot, and the plants become sickly and die. Keep them shaded during the summer, as the sun is very injurious to the young shoots and foliage. There are not many species belonging to this class of plants, but all are very beautiful and well worthy the greatest care that can be given to them. I will name a few which I know and can recommend.

Chorozema Laurenceana, a beautiful species when well grown, a hybrid of Mrs. Lawrence, of Ealing Park. C. varium, a very pretty species; the plant is a very robust grower, and I believe a native of New Holland. C. varium ilicifolium is also a pretty species, color of flower scarlet, but small; I believe also a native of New Holland. C. Dicksonii is a stiff growing little species, forming a beautiful plant, and very distinct color, scarlet and yellow. C. ovata, a lovely species when well grown. It makes a fine show, being bushy, with large scarlet flowers. C. Henchmanii, one of the best of the whole genus; when in bloom it is a mass of scarlet flowers, if well grown, but is one of the most difficult plants to cultivate. C. spartioides is a splendid climbing species. The flowers are large and yellow. It is a scarce plant and very difficult to cultivate as a handsome specimen, but is well worthy the greatest care; the flowers are yellow; it is a free bloomer. C. angustifolia is a slender grower, but very distinct, and deserves a place in every collection.

These are the species I am best acquainted with, and I can recommend them to the attention of cultivators.

EDITORIAL NOTES.

LARGE NIGHT BLOOMING CEREUS.—At the Soldiers' Home at Dayton, Ohio, last June, the writer saw some immense specimens of Cereus grandiflorus in tubs; they were perhaps ten feet high and four feet thick, for we are writing from memory only, and had on the night before the writer's visit, scores of flowers. On a visit to a lady near Dayton, Mrs. Forrer, who had some specimens quite as large and healthy as any we had ever seen in a private collection, the remark was made that if we had not seen those at the Home the day before, hers would have been pronounced unique, when it was found that these noble specimens had been this estimable lady's, and had been presented to the Home by her.

By the way, the great number of very fine plants, and excellent taste in gardening displayed by Mr. Beck, the gardener at this beautiful place, show that he ranks among the leaders in his profession.

GREENHOUSES OF COL. DURRETT, LOUISVILLE KY.—The following interesting sketch is from the Louisville *Courier Journal*.

"The lovely place of Col. R. T. Durrett, at the corner of Brook and Chestnut streets, is just now the object of pilgrimage to many persons in the city who appreciate rare plants and flowers. Col. Durrett's collection of flora is probably the rarest, as it is one of the most beautiful in the country. He has devoted many years and much money to obtaining all the finest specimens of tropical and foreign flowers and trees which could be successfully developed in this climate. In his grounds just now may be enjoyed the rare sight of pineapples, oranges, figs and bananas all growing and ripening into delicious fruit. The beautiful lawn is like a glimpse of the tropics, and the beds and plots are bright with the colors of thousands of flowers.

"Among the many rare and beautiful plants which adorn the premises may now be observed a splendid specimen worth walking a long distance to see. It is a Crinum amabile, standing in the front and now in bloom, with its sweet perfume loading the air, and its royal purple dazzling the eye. The plant belongs to the bulb family, or, as the botanist would express it, to the order of amaryllideæ. The bulb is shaped like a cone, and is fourteen inches in height from the surface of the ground to where the leaves commence, and twenty-five in circumference at the base. The leaves are four feet long and five inches wide, and in shape what is known as the lorate-lanceolate, that is, having the mixed appearance of the strap and lance in their form. The flower-stalk starts from near the top of the bulb, just below where the foliage begins, and

ascends to where the leaves begin to bend down, a distance of three feet, where it ends in an umbel, consisting of numerous lily-shaped flowers of a rich purple color and exquisite perfume. The flowers do not all expand at once, but come out in succession, so as to keep up the inflorescence for a long time. The plant is a native of the island of Sumatra, in the Indian Archipelago, whence it was imported six years ago. It is now twelve years old, and blooms from two to three times per year. It is now making its first bloom this year, but will bloom again in the fall. It is a plant which can stand no frost, and can only be grown by those who have greenhouses in which to protect it from the cold. Even before the cool nights of the latter part of September come it will be taken from its present position on the lawn and placed in the greenhouse, where it will be kept growing all the winter. It is during the winter's growth that the bulb is perfected and prepared for the magnificent flowers produced in the summer.

"Another plant, now in bloom on the same lot, is the Hymenocallis Borkiana. This is also a bulb, and likewise has evergreen leaves. It grows to the height of one foot, and sends up from the center of its leaves a flower stalk which bears an umbel, from which in succession issue from six to a dozen pure white flowers, having the perfume of vanilla. The flower resembles what is known here as the Grayson county lily, but is more delicately formed and its corona much more beautiful. It is a native of La Guyra, in South America, where it was discovered in 1850 by a botanist named Bork, from whom it took its name. It is also very tender, and requires hot-house culture.

"Still another bulb which attracts attention is the Batatas Paniculata, if bulb a root could be called which appears so much like a huge potato. It sends up a vine with leaves shaped like a human hand, and bears a rich purple flower, formed like our morning-glory, and closing like it also in the afternoon, but much larger and more showy. The root of this plant is larger than a man's head, and was imported from Western Africa. It is the same species that is cultivated for food in tropical Africa, where a negro is said sometimes to sit on one end while roasting the other of one of the huge tubers. Nothing can be more attractive than this plant early in the morning, when the whole vine is covered with large purple flowers, moist with dew.

"Col. Durrett pointed out among a large collection of amaryllises two of his own producing, which it would seem are something new in the floral world. Their merit consists in the number of times they bloom each year. The old-fashioned amaryllises can only be relied upon for one bloom per year, but these bloom from three to four times each year. One of them has a flower resembling that of the old Johnsonii, red with white stripes, which has been named Amaryllis rubra multiflora; the other has a pure white flower with foliage resembling that of the old longifolia, which has been named Amaryllis alba multiflora.

"One more plant, which is extremely lovely, is the Hedychium gracile. It is a native of Bengal, India, and has roots resembling our calamus except they are larger in size. It throws up foliage much like the common canna or Indian-shot, except more delicate; and at the summit of each shoot is a spicate or kind of pod, from which for a number of days issue one after another pure white flowers, having somewhat the shape of the ordinary butterfly and emitting the most delicate and exquisite fragrance. It is vulgarly known as the garland-flower and by some called the butterfly-flower. It belongs to the ginger family, or as the botanist would say, to the order Zingiberaceæ, and is so tropical in its nature as not to be able to endure frost; but kept in the hot-house in winter and put out on the lawn in the summer in our climate, it will produce an abundance of the purest white and sweetest-scented flowers. There could be nothing more appropriate than would be a bridal or funeral wreath of these pure white and exquisitely sweet flowers."

NEW AND RARE PLANTS.

A NEW BEGONIA.—One of the most interesting and certainly one of the most beautiful of the plants collected during the present year by Dr. I. B. Balfour, in the Island of Socotra, is a remarkably pretty species of Begonia now in flower at Kew. Of all places Socotra would have seemed to most people one of the most unlikely ones where a Begonia would be found, but the species now mentioned will, no doubt, when distributed, be highly prized both for its own merit as a decorative plant, and for its value for purposes of hybridization. It is probably destined to give rise to quite a distinct race, as to a rather striking habit is combined a peculiar tint of purplish-rose not met with except in some of the South American tuberous species or the hybrids derived from them. Another year it may, and in all likelihood will, produce larger leaves and flowers, and assume altogether a different aspect; at present the light green peltate leaves are about three or four inches in diameter—one or two of the largest being as much as seven inches—and the male flowers, which are somewhat larger than the female ones, measure about 1¼ inch when flattened out. Bulbils are freely produced at the base of the stems, and afford a ready and rapid means of propagating so interesting and ornamental a plant. A figure is being prepared for the *Botanical Magazine.—Gardener's Chronicle.*

DRACÆNA GOLDIEANA.—When in Europe, a few years ago, the Editor was admitted to a private

view of some novelties just received by Mr. Bull, large velvety green leaves and broad silver veins

FRUIT AND VEGETABLE GARDENING.

SEASONABLE HINTS.

Of the many new points brought out by the GARDENER'S MONTHLY, through its excellent contributors at different times, few have been of more practical value than that trees may live through heavy trials, and yet have their vital powers so reduced as to be badly fitted to stand other trials. To all appearances a tree may be in perfect health and in the best apparent condition, and yet it will easily suffer afterwards when the conditions are not favorable. Hence after severe winters or severe summers, we have an unusual mortality among transplanted trees. Very often we have severe winters or severe summers after transplanting, and yet the general result seems satisfactory, while at other times, though the seasons succeeding the planting seem favorable, there are numberless losses for which we seem unable to account. At least we could not once account for these things; but we now know, that the preceding season has as much to do with success as the one which follows transplanting.

In the light of these facts we may anticipate a very poor season for transplanting this year. The immense drouth must have sorely tried the constitutions of many young fruit trees. It will be impossible for the seller to tell whether the tree has suffered or not. The little thing we call vital power is hidden from the human eye. But it is well for both purchaser and seller to remember the fact, that the tree has possibly lost some of its vital power by the summer's heat, and that a little extra precaution to insure success will not be wholly thrown away. One of the best precautions will be pruning, not cutting away indiscriminately all sorts of wood, but thinning out the shoots which seem the weakest, and leaving the full, fat, solid looking shoots to stand. To be forewarned is to be forearmed, and if we know the chances to be unfavorable, we must do the best to help the vital power when the tree comes into our hands.

Established orchards, on thin or impoverished soil may be renovated in the following manner: If a tree have been planted say fifteen years, and attained the size we might expect in time, get, say ten feet from the trunk, and dig a circle two feet deep all around it, and fill in with a good compost; the effect the next season will be quite marked. If the tree is older or younger, the distance to start with the circle from the trunk will of course be proportionate. A top-dressing will also be of great assistance, as well as a vigorous pruning out of all weak or stunted branches. Moss and old bark should be also scraped off, and if the trunk and main branches can be washed with a mixture of sulphur and soft soap, much advantage will follow. Old decayed bark on fruit trees is always a sign of a want of vigor. When a tree is growing thriftily it cracks this old bark so freely, as to make it easily fall off; but when the tree is weak and enfeebled, the bark often becomes indurated before it has got cracked, and in this state the tree becomes what the gardeners call "hide bound," and artificial means must be afforded to aid the tree to recover. In the cherry and plum trees this is easily done, by making longitudinal incisions through the bark with a sharp knife. In the peach and apricot also, this process has been employed with advantage, in spite of the learned theories which have attempted to show up the absurdity of the practice. Once in a while a tree may suffer from the artificial slitting of the bark, as it will from any other good practice, but careful observation extending over years, in many localities, shows the general practice to be a very good one.

Sometimes fruit trees are unproductive from other causes than poverty of the soil, or neglect of the orchardist. They often grow too luxuriantly to bear well. In this case root-pruning is very effectual, and is performed by digging a circle around the tree, with the circle made close to the trunk of the tree. A fifteen year old tree, for instance, may be encircled at five feet from the trunk. No rule can be laid down for this; judgment must be exercised. If cut too close, the tree may be stunted for years, and if too far, it will not be effective. The aim should be to reduce the roots about one-third.

Celery as it grows will require earthing up, and Endive successively blanched; but the main

business of the month will be preparations for housing the root crops for the winter. Beets are generally the first thing attended to, they being the most easily injured by frost; Carrots, Salsify and Parsnips following. The latter are never really good until they have been well frozen; and many leave them entirely in the ground, taking them up as wanted for use. We prefer taking them all up and packing them in sand or half dried loam, in a shed or cellar, which can be kept just above freezing point; yet the cooler the better. If suffered to be in heaps they heat and soon rot. In the same situation Endive and Cape Brocoli may be preserved to the end of the year. They are taken up with a small quantity of earth adhering to them, and placed side-by-side together. Tomatoes, if dug up also, and suspended, roots upward, in such a situation, will keep good a long time; but this must be done before the least frost has touched them. It is a wise plan to sow a little more Early York Cabbage early in the month, as in fine mild winters the September sowing grows too forward when protected. A very slight protection is better for them than any elaborate affair, the sun principally injuring them. The same remarks apply to Lettuce intended to be kept over winter for spring use, though the sun is less destructive to them than to the cabbage.

Forcing vegetables, wherever the least command of heat can be had, is the most interesting and useful part of gardening. It is not by any means what it is often considered, an operation by which you pay a dollar for every mouthful. The Asparagus, Sea Kale, Lettuce, Radish and Cauliflower can be had for months earlier than in the open ground, wherever a regular temperature of 55° can be obtained, with, of course, the proper amount of air, moisture, etc. Asparagus can be had under a greenhouse stage, though of course the tops will not be so green, nor will it be much else but indifferent under such circumstances, as it would be in the full light.

Radishes require an abundance of air, and Lettuce light. Cauliflowers, if kept for some months with all the light and air possible, at a temperature of 50° or 55°, may have it gradually raised to 60° or 65°, and even 70°, and thus come into use in February, when there is no vegetable more desirable.

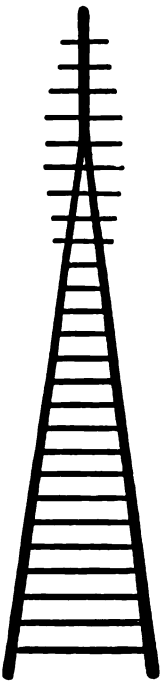
Cucumbers, Tomatoes and Beans require a temperature of at least 65° to begin with. If a temperature of 70° can be maintained in the coldest weather, a few of these might be sown by the end of the month, which will produce some very acceptable dishes about New Year's day. Rhubarb, if carefully taken up at the fall of the leaf and potted, or put in boxes, will also come forward well if put under the stage in a house of the last temperature.

COMMUNICATIONS.

BASSETT'S FRUIT LADDER.

BY W. F. BASSETT, HAMMONTON, N. J.

The accompanying figure represents a fruit ladder which I think about as convenient as any I have seen. The figure shows for itself and the ladder may be made of dimensions required and of any materials which are light and strong, but we use cedar poles. Take a good straight



pole say fifteen feet long and four inches diameter at the base, and bore holes for the rounds; then with a saw split to within three feet of top and spread the base to three feet; then put in rounds of good strong oak and secure all in place by proper fastenings and you have a ladder with breadth of base sufficient to stand firm and a single point at top, which we find very convenient.

A NEW EARLY PEACH, FREDENBURGH.

BY CHARLES DOWNING.

William H. Fredenburgh, of Kingston, N. Y., has brought to me several specimens of a seedling peach, the pit of which was planted by his wife five years since on the north side of the house, with a northern exposure; it has borne fruit which ripened the 25th of July—last year the 20th. The tree is healthy, vigorous and productive. The peaches are the largest of the early ripening kinds I have seen, very handsome, covered with red and crimson, purplish crimson where fully exposed. It is of the Alexander type in general appearance and quality, and adheres about as much to the pit; if it proves as good in other localities, it will be a valuable addition to the very early varieties. Leaves without glands, finely serrated; flowers large.

KIEFFER'S HYBRID PEAR.

BY HOWARD A. CHASE, PHILADELPHIA.

I think the position of some of the friends of this pear, on the question of its being blight-proof, is misunderstood. Because it has not blighted on Mr. Kieffer's grounds, certainly is no evidence that it will not blight elsewhere. The assumption that it will prove to be substantially blight-proof has been based on the understanding and belief that it has inherited the characteristics of its parent the old Chinese Sand pear. With the leading pear-growers of this State the Sand pear is the only variety that had escaped the ravages of fire-blight until the advent of Kieffer's Hybrid, and naturally it has come to be regarded as blight-proof. This may be assumption rather than conclusive evidence, but to me has appeared to be worthy of consideration. Other seedlings of the Sand pear on Mr. Kieffer's place have been troubled with leaf-blight, but my understanding is that nothing of the kind has ever been seen on the Hybrid.

It is remarkable for retaining its large beautiful leaves days and weeks after the foliage has dropped from Anjou and Bartlett.

Regarding the quality of the fruit, if it is improperly handled or eaten when overripe it will be as poor as Bartlett or Duchesse under like condition; I think no more so.

When properly handled I find it not only a good eating fruit but a most excellent canning variety. While it has not brought the millennium of fruit culture it has come to stay, and in my judgment promises to be the most popular market pear on the list.

[At the annual meeting of the State Horticultural Society, a large jar of canned Kieffer pears were freely tested and fully supports all Mr. Chase says of it in this connection.—ED. G. M.]

RASPBERRIES IN VARIETY.

BY A. A. BENSEL, NEWBURGH, N. Y.

Planting, as thousands of us do, and as many more thousands should do, simply for home use, a rod or two in the garden, our aim should be, I think, to reduce the number of varieties from year to year, discarding the least valuable of those which ripen simultaneously. "Get the best" is a motto which will work as well in the garden as among the dictionaries. It is a non-paying ambition that leads to the planting of a hodge-podge of many sorts.

With this preliminary let me say that there are a goodly number of raspberries, both red and black, not worth the planting, but remaining in the lists of the nurserymen because they are sometimes called for as specialties. Where the Hudson River Antwerp will do its best, nothing better in the way of a raspberry has yet been found, and more especially for market; but it needs rich feeding and clean culture. Commencing with the decline of strawberries, the daily picking will continue to the tenth of August, or to the ripening of peaches. I incline to the opinion that it is only mismanagement in some direction that fails to make it profitable and valuable beyond the Hudson River Valley.

Where the variety will not succeed, the Cuthbert—rather arrogantly styled the Queen of the Market—may be confidently planted. It is a vigorous, large-leaved plant, seldom known to be injured by the winter. It cannot be bent to the ground and covered like the Hudson River Antwerp. Mr. Downing's description of the fruit, in his new appendix to "Fruits and Fruit Trees of America," is most complete. "Fruit medium to large, scarlet crimson, roundish obtuse, conical; grains rather small, compact; separates freely from the stalk; flesh quite firm, juicy, sweet, sprightly, having a slight flavor of the common red, which is probably one of its parents."

Those who wish another raspberry for variety in color will only need to plant Brinckle's Orange. This is the old standard for good points,

and it will be difficult to find anything better in that line.

Of the black caps, I have tested many kinds during the past and present year. Not being successional like the Hudson River Antwerp, several named varieties will be needed to cover the usual period; still, there are a number in cultivation which it would be as well to neglect. The first to plant for earliness is the Skowhegan, of recent introduction, grown by J. A. Carlton, of Mt. Vernon, N. H. The canes are heavy and stiff; should be stopped at three feet to induce branching and to bear more fruit. The berries are large and jet black, without bloom, but not firm. The fruit clusters are very large.

The Centennial should have place near the head of the list for size, richness and productiveness. It is sent out, I believe, by Mr. Samuel Miller of Bluffton, Mo.

The Gregg is a most abundant bearer of large, sweet, rich fruit. The picking must be lively, as the berries ripen within a week or ten days. This being a market as well as a home berry, evenness in ripening will often prove an advantage to the grower.

The Hoosier is an exceedingly black cap, just introduced, that is very promising. As far as I have seen, it is as rich as any of the blacks. The canes are strong, and will need the pinching mentioned above in order to obtain the best results.

KEEPING APPLES.

BY RUSTICUS, LEXINGTON, KY.

In my last communication I treated of winter keeping of apples. I would continue the subject. I deem it an exceedingly important one. Soraner holds that the intact skin of an apple is its chief protection against decay. He found that apples whose waxy coating had been left unharmed, did not decay for a long time after he had smeared them with mold, although they were left all the while in a moist and warm place. Still other experiments were made to test the question whether there is any advantage in packing apples, layer by layer, with straw or sand. Four kinds of apples were packed away in glass vessels, half of each lot in chopped straw, and the other half in dry sand. It appeared not only that the sand was decidedly preferable to straw, but that the use of straw is not to be commended. Although there was no loss through decay of the apples packed in the straw, they nevertheless shriveled more than apples which were lying free in the cellar, and they acquired a musty taste from the straw as it became damp. The use of dry sand, on the other hand, seemed to be advantageous, since the fruit packed in it retained an uncommonly fresh appearance and excellent flavor, and promised to keep in good part, until July. The sand-packed apples lost only about half as much water by evaporation as those which were lying free upon the shelves. They were almost wholly free from moldiness, and when one of them happened to decay it did infect the others. Even those apples which had been bruised, did not decay more rapidly than the sound fruit, provided that the skin had not been broken. Other apples were wrapped in tissue paper and compared with those left uncovered, both in a dry chamber and in the cellar. No advantage was derived from the paper, excepting in a dry room; for in the cellar, mold developed itself more rapidly upon the apples wrapped in paper than on those which were lying free. These experiments, Mr. Editor, are entitled to most careful consideration. The Germans are very accurate and thorough in their tests. We should profit by the discoveries of scientific men. Say what they may, "book-farming" will tell. One reason American agriculture is so deficient generally, is, because farmers will so rarely listen to students and experimentors. To recur to apple-keeping, says the Indiana *Farmer*, "Every farmer who raises apples may have this fruit in using condition the whole year. Select the best keeping varieties in your possession, prepare barrels or boxes of a convenient size to store the spring stock. The fresh fallen leaves furnish the best packing materials. Finely-cut straw is a good substitute. Carefully select your apples, rejecting all that are bruised, or in any way defective. Place a layer of leaves or cut straw in the bottom of the barrel or box. On this set a layer of apples and packing. Head the barrel; or, if it be a box, nail a tight cover over it, and the fruit is ready for storing. Freezing will not materially injure them. A space now in the barn, where they can be covered with straw, is a good storage room." Says the Massachusetts *Ploughman:* "Two years ago this spring I advertised for 500 barrels of apples, and purchased nearly that many, and noted carefully the result of the various storing. Those stored in damp, dark cellars were brighter, firmer, and less decayed. In one cellar in Woodstock there were eighty barrels; in this cellar there was a spring; the water was some three inches deep

The barrels of apples were not headed up; they were just above the water on stones and timbers—Russets Greenings, English Beauties, and Baldwins. In some of the barrels there was not a single specked or decayed apple; they were the best of all I bought. The others that I bought varied in firmness and bright appearance; a dark, damp cellar in every case proving the best." There is a careless way of storing apples altogether too common; the heaping together of short-keeping and long-keeping varieties. The first beginning to rot at or near the expiration of their season, communicates the infection to the second. System must be observed in the preservation of apples. Farmers, as a rule, are sadly deficient in it. When will they become more methodical?

GRAPE VINES IN GEORGIA.

BY E. S. NIXON, CHATTANOOGA, TENN.

In Milton County, Georgia, I recently visited a grape vine of unusual size. It was thirty two inches in circumference; one foot from the ground the bark and sap-wood sound and healthy, but the heart for several inches deep was rotted out.

The vine was trained on an arbor or scaffolding about six feet from the ground, or high enough for a man to walk erect under it. It covered fully a quarter of an acre. The vine is twenty-seven years old, and has no care taken of it, except to keep the scaffolding from falling down. It was in full bearing when I visited it, August 12th, and must have had between two and three hundred bushels of grapes. The man who owned it said he thought there was enough to make five or six barrels of wine, but he did not have the time to spare to make it, and did not know how to do it, even if he had. I do not know what the variety is. He called it the Florida grape.

The berries and bunch are about the size of the Delaware; the bunch is very compact and shouldered, berries black, with blue bloom; not being ripe, I could not tell about the flavor. He said it was good, but I should not suppose very good, yet was quite palatable in its then unripe state. I should say it belonged to the Æstivalis amily, and might be Norton's Virginia.

There are other vines in the neighborhood, which were raised from cuttings of this, that are quite large, not as large as the parent, but bid fair to be in time.

Close by, on a similar scaffolding or arbor, was an Isabella vine, also quite large, old and uncared for. The berries on the arbor (what few there are) were nearly ripe, but almost all had rotted and dropped off; part of the vine had run up into a couple of oak trees that stood near it, and strange to say, were loaded with perfect bunches, hardly a rotten grape being on them. The fruit was from ten to thirty feet from the ground, and looked better than any Isabella grapes I had ever before seen.

This would go to prove the theory of high culture to be correct, and I mean to try an experiment in growing grapes in that way, and to commence next season.

Another thing I noticed was the entire neglect of the ground on which those vines grew; not a spade or plough had been used, or a pound of fertilizers given them; or even a weed been cut down around them for years.

This year our grapes rotted very badly, as did almost all the grapes in this vicinity, except those on young vines; they rotted also, but not so bad as on the old ones.

EDITORIAL NOTES.

PEACHES IN THE WEST.—Though peaches were so general a failure this year, there were occasional spots where some were found. A few trees on the grounds of the editor in Germantown had a fair crop. At Dr. Warder's at North Bend, Ohio, we had some of the most delicious fruits we ever tasted from one of his trees which escaped when so many companion trees were barren. Across the Ohio in northern Kentucky, we saw immense orchards of remarkably healthy looking trees, without a fruit,—but in the mountains of Tennessee, at from, say 1,000 to 2,000 feet elevation, there were fair crops of good fruit.

PLUMS IN PHILADELPHIA.—Plum culture must be a much greater success in these later days than it formerly was. For years and years one never saw a plum, and old folks had to describe to their children what plums were when they were young. Now there are tons of luscious green gages, and other superior varieties, and for the first time in all our experience they have been pronounced "a drug."

EARLY PEACHES AT ROCHESTER.—Waterloo and Amsden were the two earliest this season "uniformly," says the *Country Gentleman*. The Amsden

and Alexander were undistinguishable by any character, except that the former is distinctly better in flavor. Hale's Early, Briggs' Red May, Honeywell, Saunders and Musser ripened together about the same time. Early Beatrice is too small to be of any value.

THE KIEFFER PEAR AT ROCHESTER.—The *Country Gentleman* states this has fire-blight at Rochester, in common with other varieties.

STRAWBERRY PLANTS IN POTS.—It takes a long time for a good idea to become popular. It is fifteen years ago since the *Gardener's Monthly* suggested that where but a few hundred plants were needed, it would pay well to give double the price for plants layered into small pots. After these many years, the practice is coming into general use.

FIRE BLIGHT IN THE KIEFFER PEAR.—The Editor of the *Lancaster Farmer* "feels greatly disappointed," because a Kieffer Pear in the garden of Mr. Daniel Smeych, of Lancaster, had a Kieffer badly stricken by fire-blight. We think there was no occasion for the disappointment, for we have repeatedly warned our readers that there was not yet any chance to prove that the Pear was "blight proof," as it had not yet been generally distributed, and "fire-blight" had never been known to attack any kind on the raiser's grounds.

PLUM CULTURE IN CALIFORNIA —A correspondent of the *Petaluma Courier* says:—"The best kinds for pitting are the Columbia, Gross Prune and Washington; for prunes, the Petite Prune d'Agen, and the Yellow Egg for canning. Almost any of our soils are good for growing plums, but a clay sub-soil is best. But whatever soil you use, it should be under-drained, and well sheltered from the winds by eucalyptus and Monterey cypress trees. I think the plum stock is the best now for profit. Twenty-five acres in plums will make a man a nice income in a few years. I have in my orchard two acres and a half in plums, and they pay me on an average $500 a year."

PRUNING RASPBERRY BUSHES.—We believe most Raspberry growers have come to the conclusion that there is nothing whatever gained by cutting out the bearing canes as soon as all the fruit is gathered. They have generally concluded that it is one of those theoretical points which seem as if they ought to be true, but are not. But in a recent essay by a distinguished author, we find the old notion still recommended.

COS LETTUCE.—A correspondent of Sir Joseph Hooker believes that Cos is derived from the Arabic, Khaas, which signifies Lettuce in general. Lettuce is largely grown in Egypt for making Lettuce Oil.

THE LARGEST VINERY IN ENGLAND.—The London *Builder* states that the largest vinery in the kingdom is being built by Mr. George Bashford, of St. Saviour's, Jersey, the eminent grape grower. It is to be 1100 feet long and 30 feet wide. It takes 42,000 feet of glass, and is to be glazed on Helliwell's patent system of glazing without putty. This vinery is to be heated with hot water, and will take 10,000 feet of 4 inch pipes. It is intended for the production of early grapes for the London market.

CRISP CELERY.—In order to grow crisp celery, the manure put into the trenches should be as rich and rotten as possible. If there be any straw or dryness in the manure, the celery is sure to be pithy and not crisp. Another great point is never to let the plants suffer from want of water or liquid manure, both when first planted out and during dry, warm summers, some varieties of the dwarfer kinds of celery are more nutty and crisp than the larger-growing sorts.—*Gardening Illustrated.*

DAY LILY FODDER.—The Prickley Comfrey may have a competitor. Says a correspondent of the Dublin *Record*: "Mr. Elles, of Longleat grew the Day Lily for cattle in 1826, and in the same year the rough comfrey (Symphytum asperrimum) was grown as a foreign plant by Mr. D. Grant, of Lewisham. In the fifth volume of Loudon's *Gardener's Magazine*, p. 442, will be found notices in proof. The Symphytum has been remembered; the Day Lily has been forgotten. It has been an amusement to me to practice experiments in the utilization of plants not generally known as useful, and two years ago, when an old garden was ravaged to make room for some building operations, I scraped up a lot of day lilies, tore them asunder and planted them out, and this Spring I have cut them for the first time, and find them excellent fodder for cows. There must be, in many parts of the country large quantities of this plant that could be turned to account for this purpose, and a note on the subject may prove extensively useful. From the end of March to the middle of

May is the time to cut the day lily, after which it should not be cut any more the same season."

The yellow day lily is getting naturalized in our country. The writer of this recently saw it abundantly in many places in West Virginia.

MUSHROOMS. — The Irish *Gardener's Record* says: "The first thing to do in the way of preparing materials for growing mushrooms is to obtain a quantity of fresh horsedung that has not been heated. This latter condition is absolutely necessary, and where there is a difficulty in obtaining a quantity this way that has not been heated, it is advisable to make some terms with the stable-keepers, and remove the dung every day, spreading it out not more than a foot thick on the floor of some open shed, or it might be under a tree, or anywhere secure from rain; turn it every day or so until it be partly dry, and when a sufficient quantity is ready a bed may be made. Generally speaking, the end of September is as early as most people make mushroom beds, and from that time up to Christmas they may be made in succession as wanted. About six weeks after being made is as soon as mushrooms may be expected, sometimes they come sooner, but often much later. The situation for a bed is not material—any place not too damp, but secure from rain and frosts will do. One of the best mushroom beds we have ever had was under a tree covered up pretty thickly with litter to keep out the frost; and this bed answered admirably, producing abundance of mushrooms in long succession. The bed was formed as a ridge with a base of about five feet and as steep as it could well be made, with the short loose dung trod firmly up to the ridge. Being spawned and covered with mould, in the usual way, well beat over, and covered up with litter, it received no further attention than uncovering and gathering the crop, and a heavy watering towards the end of the season to revive it again, which it did for a time. But it is needless to say that for an out-door bed like this more dung was used than would make several shelf-beds in a well constructed mushroom house. A lean-to shed is also a pretty good place for a bed, and if it be a very cold place a greater proportion of dung must be used than if it were warmer; something like fifteen inches of solid dung well trod on will not be too much, taking care to have the dung tempered by exposure and frequent turning before making up, and in such a place a good crop may be expected. A cellar is also a very good place for a mushroom bed, and certainly better than any open air place; for mushrooms seem to like a still atmosphere—almost stagnant in so far as regards motion, so that a large airy apartment, however useful for most other things, seems unnecessary, if not absolutely hurtful, to the mushroom; so that amongst the many places we hear of their being produced, very exposed places are the most rare."

SCALE ON FRUIT TREES.—The *Pacific Rural Press* says: "Dr. Chapin and D. C. Vestal have been experimenting for two months past with the various remedies for the insect plague on fruit trees. They will make their report at the next meeting of the Horticultural Society. They find that petroleum, or kerosene and lye, are the two most reliable and in fact the only effective exterminating agencies that can be profitably used, and that while destroying the bug, actually invigorate the trees."

CALIFORNIA PLUMS AND PEARS.—These were in great quantity in Philadelphia markets the past season. They were in excellent condition and brought good prices, but whether satisfactory to the shippers, we do not know.

THE WILD RICE.—This interesting plant, Zizania aquatica, the food of the famous "Reed-Bird" of the Philadelphia markets, has been successfully introduced to culture by Count de Chanary, in France.

CITY ORCHARDS.—The *Gardener's Chronicle* notes that in a closely built up portion of London, a citizen has a small cold grapery, that is, a grape house of glass without any fire-heat, in which he has two hundred bunches of fine Black Hamburg grapes, and a large number of ferns and rock plants are grown beneath the grapes.

NATIVE PLUMS.—Stewed Native Plums, seem popular on the tables of the leading hotels of Cincinnati. They seemed to require weight for weight of sugar to make them palatable, and even then they had a "persimony draw" with them. As the domestic Plum is so easily raised now, perhaps we can afford to wait a while till the Natives are more highly improved before hankering much after them. Once in a while we meet with encouraging examples, showing that some day the Natives may be better than now.

PEACH TREES AT CHATTANOOGA.—Taking a hasty ride through this famous Tennessee city lately,

the writer noticed that the Nixon nurseries were growing a very large number of Peach trees, and which had a remarkably rich and healthy appearance.

From these healthy growths of improved kinds near their own doors, we should suppose the day of small trash, known as seedlings, will soon be over.

RAW TOMATOES.—The following funny piece—funny from an American point of view—is from the London *Gardener's Chronicle*. That the tomato is truly a first class hepatic renovator is now so well known here that no one questions it, that we know of. But we don't eat them like apples. We pepper or salt, or sugar, or oil, or vinegar them—just as the humor strikes one. We eat them as we eat oysters or cucumbers, and not like apples! It seems strange that after the general use for half a century here, there should be a question yet in England as to their wholesomeness.

It is these little things which come up once in in a while, which make it seem to an American that England moves slowly along. Some day when England applies to be admitted as one of the United States (and we shall be glad to have her), it may be different. But this is what the *Chronicle* says: "A clever writer has declared that in the eating of tomatoes lies the hope of the human race for deliverance from liver complaints. This should be good news alike to unfortunate sufferers from the ills to which the liver is heir and also to growers of the tomato. We may be pardoned for thinking that this assurance is a little exaggerated, and that, further, it is not probable that because of the discovery medical men will have to shut up shop. If but one tithe of the virtues found or said to be found in various fruits or compounds were genuine, death should long since have become unknown to us, and the human race should be enjoying the felicity of living in perfect health and beauty for ever. But whilst we may throw just a shade of doubt over the light of the tomato discovery, we can hardly offer any check to the general and, if the public like, unlimited consumption of that fruit. That they will ever become acceptable as ordinary uncooked fruits seems improbable. A boy who would devour sour apples with gusto, and think himself the envy of the human race if he had a bushel of such acid and indigestible products, would turn with disgust from the mawkishly sweet tomato. We must train a long while to get an appreciative palate for them, and when we have obtained that, too probably the appreciation for better fruits will be gone. Therefore we must fall back upon the tomato in its cooked form if we are to be saved from the horrors of bile and disorganized livers, and there it is our troubles begin, because it is not everyone who can cook a tomato. We may go further and say that, what with the difficulties with which bad seasons now and then beset the plants, it is not every one who can grow them. All the world eats potatoes, and to these we have already ascribed certain antiscorbutic properties. Who will so far become the benefactor of mankind, particularly that portion troubled with deranged livers, as to tack on to the potato the medicinal properties of its brother Solanum, the tomato? That would be indeed a glorious result, worthy the approbation of grateful humanity."

NEW OR RARE FRUITS.

BERCKMAN'S GRAPE.—At a recent meeting of the Germantown Horticultural Society, some bunches fruited in the vicinity of Philadelphia were exhibited, and the exhibitor confirms the following from Mr. Berckman's pen, as fully applicable to this more northern latitude: "Parentage, Clinton and Delaware; first fruited in 1870. Vine as vigorous as Clinton, which it much resembles. Holds its foliage until frost. Bunch larger than Delaware, shouldered, and not as compact as those of either parent; berry one-third larger than Delaware, of same color; quality equal to the favorite variety; maturity middle to end of July; never has mildewed in our grounds since we first fruited it in 1873. It has the rare and desirable combination of the extreme vigor and fertility of the Clinton, with the excellence of the fruit of the Delaware. Dr. Wylie always considered this variety as one of the most promising of his seedlings. Vines have been growing and fruited in several localities of Georgia and Alabama, and it fully sustains all that was expected from it."

FAY'S PROLIFIC CURRANT.—This new variety makes a pretty colored lithograph, as we note by one before us. The whole branch is given, and this renders it difficult to judge of the exact merits of the variety, as examined bunch by bunch, because in this mass it is difficult to see

where a single raceme begins or ends. So far as we can guess, an average bunch appears to be about three inches long. So far as we can judge from the drawing, the berries are nearly as large as the cherry, while the bunch or raceme would be about one third larger. Mr. Downing says of it:

"This is very large and showy. As to 'Fay's Prolific,' judging from the branch you sent me, it indicates the most prolific bearer I have seen. The strings or clusters are very long, and hold their size well in proportion to the end. The clusters are much larger and longer than the cherry currant. As to quality, it appears to be about the same as the cherry currant."

HAMES APPLE.—Mr. Coles, of Atlanta, one of our most careful pomologists, believes that notwithstanding the great number of varieties now known, this one will be a valuable addition to the list for Southern planting. He gives the following history of it:

"Mr. Henry S. Hames, of Troup County, Georgia, bought of a North Carolina apple wagon, in the town of LaGrange, in November, 1842, some apples called 'Queen'—probably the variety known as Buckingham—and planted the seeds; four came up and grew; at one year old he transplanted them and one died; the three remaining trees bore fruit the third year after they were transplanted; the first commenced to ripen its fruit June 15th; the second in August, and the third in October; the latter two were of no value, and were discarded. The first mentioned promised well, and was called 'Hames Seedling,' and has proved to be the most valuable early apple known.

"This splendid apple was introduced by us in 1876, on evidence sufficiently strong to support even a new thing in the multitude of pomological novelties that are now challenging public notice; but we have since then accumulated facts in regard to it that beyond question leaves it without a competitor among the known varieties of early apples. It ripens with Red June and Astrachan.

"1. As to uniformly large fruit, we had one specimen that weighed 14 ounces, and six average size weighed 3 pounds 10½ ounces, and these from trees twenty-seven years old that bore a full crop. 2. Beauty of appearance, waxen yellow, striped and splashed with bright carmine. See extracts from letters from leading Pomologists. 3. Its quality is better than Astrachan; is high flavored, and cooks well. 4. Vigorous growth of tree, forming fine round heads. 5. Good bearing qualities, the original tree having borne thirty-two annual crops in 1877, and those grafted from it retain the same character. The fruit we had was from trees twenty-seven years old, that had borne twenty-four annual crops. 6. Heavy cropper. Mr. Hames says: 'Bears almost invariably heavy crops.' 7. Early age at which the trees bear, three and four years from graft.'"

RASPBERRY CHURCHMAN'S SUPERB.—In the illustrated advertisement of Mr. Churchman, given in our last number, the good idea is adopted of photographing the rule at the same time, so that the picture conveys at once the exact size of the fruit. We have had the fruit before us, as already noted in our magazine, and believe it will be a first-class addition to the list of Raspberries.

SCRAPS AND QUERIES.

A GOOD PLUM STOCK.—T. V. Munson, Denison, Texas, writes: "I send you by mail to-day, samples of fruit (green ripens in October), and leaves of a Plum, which grows wild here in various soils, usually in heavy limestone soils. I cannot find it mentioned in any work at hand, and would like to know of you, through GARDENER'S MONTHLY, the species to which it belongs. It blooms in umbels before leaves are out. The fruit is very astringent till fully ripe, usually after a frost or two, and heavily coated with white bloom. The trees sometimes grow to forty feet in height and a foot through at base. It is very vigorous, long lived, entirely free from disease, and does not sprout from root as other species. On this account, it seems highly adapted as a stock for the Peach and Plum. It does not seem to suffer from 'root rot' in 'dead soils,' as I have often seen it growing in 'hog-wallow' prairie soils with great vigor to age of twenty-five to forty years. In our experiment so far, it makes a smooth fine stock for budding or grafting upon."

[This Plum is a distinct species, known to Botanists as Prunus umbellata. The facts which Mr. Munson communicates are very interesting, and point to a very useful career in horticulture for this species.—ED. G. M.]

ERIASOMA PYRI.—A northern Maryland correspondent says that apple growing in his district is becoming very precarious on account of this insect, and adds: "I would like to know, through the GARDENER'S MONTHLY, how widely disseminated this root louse is. The Department of Agriculture mentions it. Thomas calls it 'Pemphigus pyri.' How to keep clear of it is the question?"

FORESTRY.

COMMUNICATIONS.

CATALPA AS A TIMBER TREE.

BY A LADY OF ILLINOIS.

There is in nature no quality more decided than the manner in which she adapts vegetation to the various conditions of climatic change. When by transplanting a tree we bring to bear upon it difference of temperature, an atmosphere drier or more damp than its natural one, and all local influence foreign to it, we find in nature an effort to meet the new surroundings. If the change is too radical for her action, and a plant is removed from its habitat beyond the limit of endurance it succumbs, giving place to other forms. Defeat is only in appearance, for nature frequently abandons the original species, starting afresh with a form of life that can meet the requirements of altered location. One of the most striking examples of this is presented in the comparatively recent discovery of two distinct species of the Catalpa—a tree destined to become as important in its usefulness in America as the shady, fruit-bearing date-palm so highly prized by the Arab.

Both kinds of the Catalpa are indigenous to the United States, growing side by side in localities favorable to both species, and until the last two years supposed to be, from this circumstance, the same tree. Early accounts show that the kind called the common Catalpa,—known throughout the North-west as the tender kind,—was discovered in the forests of Alabama and Georgia, where its beauty as a shade tree was conspicuous even amid the showy magnolias and wild olive. Better able than these to bear a colder climate, the Catalpa was cultivated along the Atlantic coast region as far north as Massachusetts, seeming to find there a northern limit.

In the year 1825, General Harrison called the attention of the Western pioneer to the merits of the Catalpa tree. He referred to some Catalpas he had seen growing near Vincennes, Ind. The question arose, whence had they come? The tree had not spread so far west from the coast, and no one could claim to have planted them. They were cultivated with care, and in the course of time when the Georgia form and the Western type met together, it was found that the latter bloomed fully three weeks sooner than the common variety. The fact was at first disputed and called accidental, but impartial, laborious and minute investigations by some of the most experienced aboriculturists of the country have proved it beyond a doubt. During the last year Dr. John A. Warder, of Cincinnati, and Mr. Robert Douglass, of Waukegan, Ill., have pursued independent investigations of the subject, both reaching the same conclusion, that our Western forest has produced a variety of the Catalpa, known as the Speciosa, from its rich cluster of blossoms in the spring, which is adapted to the climate and soil of the West, while the Eastern species cannot bear the test of a severe winter.

Wishing to be assured by the only test that is conclusive, Mr. Robert Douglass procured seeds of both species, cultivating each with equal care. As the result he now devotes all his attention to the only one that can be held desirable for the tree-planter or the farmer of the West, the early blooming, or the hardy Catalpa has proved itself by nature fitted for the needs of the locality to which it is indigenous, while its Eastern type succumbs beside it. Throughout the Mississippi and Ohio river valleys, from the northern limit of Illinois to the upper portions of Mississippi and Arkansas, the Speciosa Catalpa has a permanent foot-hold, while to the middle and southern portion of the section indicated it is a native tree.

The permanent value of the Catalpa to the country at large cannot be overestimated. The trees transplanted to the treeless prairies of Kansas, Iowa, Nebraska, &c., by the extensive experiments made in the interests of the Kansas City, Fort Scott, Gulf Railroad, &c., under the superintendence of Mr. Douglass, have proved capable of enduring the extremes of fierce summer heat, with weeks of tropical temperature, without a drop of rain, and also to bear the

severity of the hardest winter known for many years.

Its power to resist decay is shown by logs proved to be used for several generations. A Catalpa gate-post set up in Indiana during the year 1780, was found in 1871 to be apparently sound as ever. Railroad ties, daily crossed by heavy trains, have done duty undisturbed for thirteen years, and even those placed in wet and swampy soil are unaffected by the cause of certain decay for almost any other American forest timber.

To the hardy pioneer of the West desiring a tree which shall repay him during his own lifetime by its vigorous growth, and which shall be valuable to a second generation, nothing can equal the Catalpa speciosa—from its beauty as a shade tree, its rapid growth and value as a timber tree in the treeless plains of the West.

EDITORIAL NOTES.

FORESTRY IN CONNECTICUT.—Connecticut gives to every person who will plant and care for trees along any highway an annual bounty for each quarter of a mile so planted. The trees are to be elm, maple, tulip, ash, basswood, black walnut and hickory, the elms not to be more than sixty feet apart, and the others not more than thirty feet apart. There could be no possible objection to this if the object were simply to make shady carriage drives, or pleasant paths for pedestrians, but in the interest of a great national question like that of forestry, how childish!

THE OSIER WILLOW.—We learn from the *Journal of Forestry* that in some parts of England the culture of Osiers, or willows for basket making, is being abandoned on account of the successful competition from abroad.

THE PASSAGE OF IRELAND BACK TO THE ORIGINAL FOREST.—In consequence of the inability of the land owners to collect rents from tenants, numbers are putting land down into forests, and abandoning agricultural pursuits. This reforestation has been going on for some years, but more last year than ever before. There were over 3000 acres more set out to timber last year than the year previous.

TIMBER OF CUPRESSUS LAWSONIANA.—Among the valuable works of Professor Sargent in his recent investigations in American Forestry, the London *Gardener's Chronicle* says: "From an economic point of view perhaps the most striking and important fact elicited is the value of Cupressus Lawsoniana as a timber tree. Hitherto we have considered this as an ornamental tree only, but it appears from the investigation of these gentlemen that the Port Orford Cedar—now ascertained to be Cupressus Lawsoniana—is one of the most important timber trees of the Pacific coast.

GAS TAR AS A PRESERVER OF WOOD.—There is no greater destroyer of wood than heat. When heated to a sufficient degree it burns, at a lower temperature it chars, and lower still if still hot, slow combustion is continually going on. Tar adds to heat and hastens combustion. It is used to preserve wood because it is thought to exclude water, which to some extent it does; but water is not nearly so great a destroyer of wood as heat is. Water, with a moderate heat, breeds fungus, and this is a wood-destroyer also.

NATURAL HISTORY AND SCIENCE.

COMMUNICATIONS.

POISON FROM KALMIA LATIFOLIA.

BY E. S. NIXON, CHATTANOOGA, TENN.

In the August number, page 248, under the head of "Kalmia latifolia poisonous," you ask for conclusive proof on the subject.

In the course of conversation with a friend in Alabama (who, by the way, is a very intelligent gentleman and a great hunter), he told me that last winter he lost one of his best hounds from eating the entrails of a deer that they had recently killed, the deer having eaten the leaves of the Kalmia. He said that when there is snow

on the ground the deer eat the Kalmia leaves which do not seem to hurt them, but the hunters have to be careful that the dogs do not get the entrails to eat, for if so, it makes them very sick, and frequently proves fatal to them. This is not conclusive proof, but it is a straw.

IPOMŒA GRANDIFLORA.

BY J. McP., ASTORIA, N. Y.

Your correspondent makes a good point against the Botanists. In the confusion with synonyms among the forty odd genera and over six hundred species, with numberless varieties, included under convolvulaceæ, I do not know of any herbarium in the country where one can straighten things out. Calonyction grandiflora, or Ipomœa grandiflora is a very beautiful thing, and is quite common in cultivation in many sections of this country. It is popularly called the "moon flower" by the Hindoos, and the "night lily" by the Europeans. Whether the West Indian Ipomœa Bona-nox is the same thing, I do not know; the cultivated plants here have much smaller flowers than the Indian wild form, but that often happens, or the contrary. Numerous seedsmen catalogue Ipomœa grandiflora. There is a variety of Ipomœa Niel (Pharbitis hederacea) with that affix; then there is a variety of Pharbitis hispida syn. Ipomœa purpurea syn. Convulvulus mutabilis syn. Convolvulaceæ major called Ipomœa grandiflora marmorata by a great American seedsman. Then there used to be Quamoclit grandiflora, quite a good thing; it may be Ipomœa grandiflora again by this time, for aught I know.

[Our correspondent must not make more confusion than he now complains of. Quamoclit grandiflora is a synonym of Morenoa grandiflora and not of Ipomœa grandiflora. There may be a great many synonyms to the plant in question. Linnæus called it Convolvulus grandiflorus. No one objects that the genus as Linnæus left it, ought not to be divided. George Don tried to separate some under the name of Calonyction, and it is only to be regretted that he has not succeeded in doing it. Ipomœa divided from Convolvulus, does stand, and this plant has to go there. There are only two other synonyms, I. Bona-nox of Heyne, and I. muricata of Wallich,—the last given because it was thought at first to be distinct.

It is better to have synonyms than to try to maintain distinctions, which experience shows not warranted.—Ed. G M.]

KALMIA LATIFOLIA POISONOUS.

BY W. F. BASSETT.

I have never seen a case of poisoning from Kalmia latifolia; but when I lived in Massachusetts, sheep were occasionally killed by eating the leaves when late snow storms covered up the grass after they were turned out to pasture in spring. Some relatives of mine had quite a number of sheep poisoned in this way at one time, and among them a cosset, but the latter was saved by giving it milk which it drank freely. Gaultheria procumbens (Teaberry, of this section, Chequerberry, of the N. E. states) was said to be a remedy. I have the impression that the leaves of Kalmia contain Prussic acid, cannot now give any authority for it.

NOTES FROM SOUTH CAROLINA.

BY A CHARLESTON LADY.

Unavoidably detained at the South during these terribly warm months (June and July) I have taken refuge at a little village on Charleston Harbor, S. C., very primitive, very untidy and sadly needing whitewash, but withal very green, shady and healthy.

Opposite our piazza door gleaming, (too gorgeously bright in the glaring sunshine,) stand groups of crape trees (Legerstrœmas) a blaze of deep pink blossoms covering the tops of the trees actually painful to the sight.

Further off are some with purple or rather dark lilac blossoms far prettier than the pink, as the green leaves are delicately interspersed with the purple flowers. Another, close by me is of a much paler hue, the flowers dropping lightly to earth as the sea breeze wafts over them. The clean naked trunks of these trees are entirely without bark, so smooth that you could fancy some careful hand had just peeled them. The young plants grow from suckers, as also from seed and bloom when two or three feet high.

The Spanish Bayonet, as it is called here, (Yucca) grows wild along the shore low down on the moist sands, high up the bluffs, everywhere where it can get a foothold in the shifting sand. Their immense crowns of white bells, pleasantly fragrant, stand like sentinels conspicuous from sea. I do not know if florists generally, are aware that a yucca may be sawed into pieces

and stuck in sand, and that every piece will take root and grow.

In an adjacent lot I look upon a camellia tree, fully thirty feet in height. Many stems grow straight from the earth for a considerable distance without branch or leaf; the top forming a thick umbrageous arbor of shining evergreen. A friend who was here last spring assured me that when in bloom, every spray and branch was covered with single flowers, so numerous that from a distance the tree was crimson instead of green. It grows about two hundred feet from the ocean, entirely exposed to winter gales.

The mocking birds are more numerous here than I have ever seen them elsewhere. They congregate principally among the trees which skirt the shore. Now, having raised their broods of young birds, they may be seen every evening anxiously flying around them, from live oak to live oak, from the dark leaved "pride of India" trees—the berries of which later on form their principal subsistance—to the tall bushes of the purple dyed poke.

We found a nest full of well-fledged birds in a bush on the beach, where the wind from the ocean must have rocked them day and night. A smilax had entirely covered the bush with its wiry limbs, and beneath the dense shade of its evergreen leaves the nest was discovered. It is a singular fact, that the parent birds, when alarmed by the approach of a human being, utter two such peculiar cries, so hoarse and angry, flying close to the ground, and alighting continually on any low bush around, with such indignant flaps of their wings, that nothing is more easy than to discover the exact locality of the nest they are so anxious to protect.

EDITORIAL NOTES.

TALINUM TERETIFOLIUM.—Mr. Thomas Meehan, before the Academy of Natural Sciences, remarked that the point he made recently in regard to Drabaverna, that mere light alone evidently failed to account for the special opening time of flowers, was confirmed by some recent observations on Talinum teretifolium. When preparing the chapter on this plant for his "Native Flowers and Ferns of the United States," a few years ago, he had watched plants almost daily through the whole season, and found that without any exception they opened at 1 P. M. and closed at 2. This season he had watched them again, and found that though the time of opening was the same, 1 P. M., they never on any occasion noted, closed at 2, but continued sometimes to half past three, half-past four, and on one occasion were found closing at half past five. Mr. Meehan said he had endeavored to associate these variations with some atmospheric changes, such as heat, light and moisture, but in no case did these endeavors prove satisfactory. In the "Proceedings of the Kansas Academy of Sciences" on the table, Professor Smyth had contributed materials for a "floral clock" for Kansas, and Talinum teretifolium was set down in the list as opening at 11 A. M. in that State. Mr. Meehan believed that the laws influencing this particular class of motion in flowers were completely hidden from us, and that the subject offered an inviting field to the biologist.

Mr. Redfield suggested that perhaps the age of the plants made some difference in their habits.

Mr. Meehan replied that the patch in his garden was much larger now than at first, from addition through self-sown seeds, but all the plants behaved precisely alike. He did not suppose that external circumstances had no influence, but that the condition of the living material on which they acted, decided the final character, and that Mr. Redfield's question was in the right line.

CATS AND CATMINT.—We never knew that it was doubted that cats had a peculiar affection at times for catmint, until we accidentally came across the following a few days ago, in Dr. Darlington's *Flora Cestrica*.

"De Theis, in his Glossaire de Botanique, has the following:—Le gout des Chats pour cette plante est très-remarquable; ils la mordent, l'arrachent, et se roulent dessus avec transport. Il est cependant singulier qu'ils nes' attaquent qu'à celle que l'on plante, et nullement à celle qui n'a point été deplacie. De la lè proverbe anglois—

"If you set it,
The cats will eat it;
If you sow it,
The cats wont know it.

"I doubt, however, whether our American cats have yet learned to make the distinction 'le gout pour cette plante.'"

It was the writer's opportunity to note this Summer the behavior of a cat just as the French writer describes it. A strong branch

had been partially broken by a lawn mower and laid on the grass withered. A cat rolled over it, and seemed as one might say joyfully insane for near half an hour, and until she was diverted by observing those who were watching her. This we suppose to be the real meaning of the English couplet, for when transplanted the leaves are somewhat withered and it then gives out a greater odor, and attracts cats; when one "sown" and of course growing without any withered leaves, would be comparatively free from odorous attractions.

Bug-Nut.—Just as we expected the effort made by well meaning persons to replace the hard names of Botany by easy English names, has opened the sluice, and plants which have already any number of names, are getting as many more. Everybody feels authorized to give a name, and everybody does it, each namer seeming anxious that his name should have the final honor of general use. As it is impossible to read everything day by day, we cannot always keep track of the new christening, and already we do not know what plants the writers are telling us about. Here before us is an article on the "Bug-nut." Though in the English language it was all Greek to us till the writer happened to forget himself and use the word Coreopsis. As this plant had already been christened "Tick-seed," there seems no necessity for the new name. Perhaps "Bug-nut" is considered more elegant than "Tick-seed." For our part, hard as it may be, we fancy most people will prefer Coreopsis.

Scarlet Snow.—There is in the arctics a small fungus which grows in snow, and gives it a red tint. It is Protococcus nivalis. This season the same Scarlet Snow has been seen in the mountain of the Holy Cross in Colorado.

Drought in Texas.—Mrs. S. E. B. of Houston, Texas, August, 25th, says: We have had excessive drought which injured all our fruit crops, Peaches, Grapes, Strawberries. Strawberry plants are almost extinct. The temperature at noon stood about 93° since May 20th. Much of the Shrubbery died. But we have health, a blessing to be thankful for, above all our losses and crosses.

[93° is good, but here in Germantown we could boast of 102° for half an hour on the 7th of September. Heat is rather favorable to health in general. It is the rain following heat that brings fevers.—Ed. G. M.]

SCRAPS AND QUERIES.

Prunus Simoni.—Under this name Professor Bessey has a peculiar peach-like species, which has been found quite hardy in the college grounds at Ames, Iowa.

Sugar Maple.—"H. G. S." asks: "Can you tell the readers of the Monthly, where is the earth the maple tree gets the sugar from, and why this tree should be the only one to possess this power. I have often asked this question without any satisfactory response?"

[It is no wonder you get no response, for it is not likely any one can explain it, all we can say is the sugar maple is not the only tree; large numbers of trees and plants have sugar. All garden fruits have sugar, and there is nothing more wonderful in there being sugar in a maple trunk, than in a bunch of grapes. But the sugar is not drawn in from the earth. It is formed in the living structure, and by the aid of that power we call life. We can no more understand how it is done than why an animal feeding on grass makes mutton, and another feeding on the same grass makes beef. Carbonicacid is drawn into a plant's system from the atmosphere. The carbon remains in the plant's system. Sometimes this carbon is turned into sugar as in the maple, or into starch as in the potato. If anybody knows just how the plant manages to do it, and have told of the process, it has escaped our knowledge. So far we have to answer our correspondent as others have done, "we do not know."—Ed. G. M.]

Fruiting of Yucca angustifolia.—Mr. D. S. Grimes writes: "Enclosed you will find a few seeds of the Yucca angustifolia not yet ripe, but furnishing proof that this Yucca does bear seed, which has been doubted by some of your correspondents. This plant is found growing in large quantities on the plains near the Rocky Mountains, wherever the soil is of a dry, sandy nature. In May a flower stalk grows up from the centre of the plant two or three feet in height, producing a large gorgeous plume of creamy white flowers. Cattle are exceedingly fond of this flower-stalk, and eat it off as fast as it appears, consequently no bloom is seen on the open plains; it is found only in enclosures where stock not is permitted to run. This fact has doubtless given rise to the idea that it does not bear seed."

LITERATURE, TRAVELS AND PERSONAL NOTES.

COMMUNICATIONS.

NOTES AND QUERIES—No. 29.

BY JACQUES.

"W. W." asks for a list of medium sized ornamental trees, and if possible that some of them should produce something. The question is interesting and demands a considerate reply, because nothing is more common and unsightly than a small place with trees too large, a usual mistake that with knowledge can be corrected at the start. In this climate (latitude) you will find the native Pawpaw both beautiful and producing an edible fruit, in fact quite as ornamental as the season progresses as any magnolia; its early bloom, too, is very interesting; taste of the fruit resembling bananas, and soon acquired.

Soldiers' Gardens.—Good example, fortunately, as well as bad, is contagious. Government gardens devoted to vegetables and flowers will assuredly demonstrate the capabilities of soils and climates before the eyes of settlers, and stimulate them to like attempts. Unquestionably it will pay to establish at every post upon the frontier a large, well appointed garden under the care of experienced men; and it is to be regretted that the United States Department of Agriculture has not taken this in hand long ago. —*Burnett Landreth in United Service Magazine.*

A man with some experience as a gardener can be found in every garrison, and under his direction others can be broken in to the work. Why should not the Government enlist a sufficient number of expert gardeners to send one to every important frontier post? Surely the people's money is spent often to less advantage.—*Ibid.*

The intelligent culturist will be brought to notice the effect of various forms of potash, nitrogen and lime; he will gradually be drawn into geological research, for he must study the peculiar features of the soil. Finally he will find that the birds are all his co-partners in the garden.

Valuable Sapphire Mines have lately been found in Siam. One weighing 370 carats in the rough, is the largest hitherto found. The ruby, onyx and jade are also found but of inferior quality.

EDITORIAL NOTES.

BOTANICAL RAMBLES.—It appears that the interesting sketch and "botanical rambles" from San Barnardino, were intented only for the delectation of the editor, and this will explain how some friends received so enthusiastic praise, and some other, perhaps, over-enthusiastic expressions were used. Had it been intended for the press, it would have been more carefully written. Yet it seems to us, as we have recently said, that the more naturally a letter is written the better it reads, and we are quite sure our readers enjoyed it, and the writer need not feel badly over it.

TYPOGRAPHICAL ERRORS.—To show how next to impossible it is to avoid typographical errors, we may note, that in an eminent scientific serial a number was recently issued in which there was a large number of errors on one page. The editor who has a laudable pride in strict accuracy, evidently felt his evil passions rise thereat, and sent corrected pages to his scientific friends. Yet with all these inducements to a perfect copy, the corrected page comes to hand with "Dr. Minks, of microgonidia-fame" instead of "micro-gonidia fame."

BIOLOGICAL LECTURE AT MONTREAL.—The following paragraph is from the report of the meeting of the American Association as given in the Cincinnati *Commercial:*

"President George J. Brush called the meeting to order and announced that the Association invited Professor Thomas Meehan to address the section of Biology at the next meeting in Montreal. This action was taken for the reason that Professor Meehan has several times been invited to accept the Vice-Presidency of the Association, but has for personal reasons always refused. The resolution was passed to express the appreciation of the members of the Association of his contributions to science, and his constant devotion to the interests of this body. [Applause]."

NEW ENGLISH NAMES.—Honest old Parkinson, who wrote on Gardening in the time of Queen Elizabeth, had a suspicion against those who were continually introducing new English names. He says: "Some have called the yellow Lupin, Spanish violets, but other foolish names

have been given it, as Virginia roses, and the like, by knavish gardeners and others, to deceive men, and make them believe they were the finders out, or great preservers of rarities, of no other purpose but to cheate men of their money. As you would therefore avoyde knaves and deceivers, beware of these manner of people, whereof the skirts of our towne are too pitifully pestered."

WHERE ARE THE NAUGHTY GARDENERS?—I am told that the governor of a certain gaol finds that he has the members of almost every trade and profession under his care at one time or another except gardeners, and that if he wants his plot of ground done up he is always unable to find a man "within the walls" to do it. If the exception had been writers for the press now. —But there, I believe cynical persons are to be found who say that even journalists sometimes do the things they should not, and leave undone that which they ought to do. Well, for my part, I am ready to give the credit to the gardeners. But I can't make the matter out. Can it be that they are anxious to do all in their power to atone for the lapse of the First Gardener, which has entailed such dire consequences upon us all? —*London City Press.*

[Much the same is American experience, except that though there are not any in prison, there are a few who ought to be. They seem sharper than some other classes, and do not get caught.]

OUR AGRICULTURAL COLLEGES.—An address by Professor W. J. Beal. Among the many useful labors of Professor Beal, this is by no means the least. One may be at no difficulty in reaching the conclusion after reading this pamphlet, that if these colleges are useless as it is sometimes urged, it is rather because of bad management than that there is anything wrong in the plan. While many have been comparative failures, there are numbers that are among the most popular institutions in their several states. It has been urged against some of them that the students do not return to farming after an education there. But we could never see the force of this objection. An education in an institution having especial regard to agriculture, sends a knowledge of the needs and advantages of agriculture through the community, though not one student returns to the farm, and this wide-spread distribution of agricultural knowledge is in itself a great gain. The Michigan College, however, does send many back to the farm. Of 212 who have graduated there, 86 became farmers, and many more embraced pursuits having relation to the cultivation of the soil.

PROF. C. V. RILEY AND THE YUCCA MOTH.—At the Boston meeting of the American Association, Mr. Riley read a paper, which was ordered by the committee to be published in its proceedings. The volume has just been issued, and besides the paper ordered to appear, are copious foot-notes added, which the officers of the Society did not order in. Thus we have the anomaly of a volume of "transactions" issuing a paper that was never transacted. This new paper under the guise of foot-notes, inserted by Professor Riley, is an attack on Mr. Meehan. In this after-added paper we learn that Mr. Meehan has made "misrepresentations," "gross misstatements," "unscientific statements," "pure misstatements," some of them "famous," "misconstruction unjustifiable," and so forth. Mr. Riley has thus placed these remarks on record in the published volume of the society, with no opportunity for any one to know of them beforehand, and with no chance to show that there is no foundation in fact for any such epithets.

It is to the credit of the officers having charge of the publications of the association that no paper coming regularly before them with a personal attack like this on any member, would have been endorsed for publication; and it will be clear to everybody from the character of the production, that this great blot on the volume is on the sole responsibility of Mr. Riley. We will, however, do Mr. Riley the justice to say that we believe it was simply a thoughtless act of impropriety, for he surely knows that his well-earned reputation does not need to be bolstered by questionable acts like these.

THE A. B. C. OF THE RAILROAD QUESTION.—From L. E. Chittenden, N. Y. There are few classes in the community more interested in good honest treatment from railroad corporations that the horticultural. At present they are in a general way treated outrageously, and the thought is uppermost in the minds of members of horticultural conventions, and whenever there may be a few horticulturists gathered together,—What shall be done to remedy this crying evil? It seems to us, however, that there is little good judgment shown in the manner in which the subject of a remedy is treated by those who have so much cause to complain. When

the gate closes unexpectedly and pinches ones' fingers, it is only the very small and very weak boy, who proceeds to kick the gate and batter it to pieces. It requires cool heads and calm judgment to decide just how to arrange the machine, so that it shall not pinch us in that way again. Somehow the documents before us do not leave on the reader an impression of logical strength. There is a story about a criminal having learned his tricks from studying the life of a railroad president. It seems as if one would choose Judas Iscariot as an examplar of the teachings of Christ. Reasonable people look for something better than this. If we look for stronger points we find among the agents proposed to reform our railroad troubles "the election of two good men as Senators from New York." But we have been through all this sort of thing before, and believe, though two angels from heaven be elected "Senators from New York," horticulturists will still have a heap of trouble from railroads to groan under.

The only suggestion in all this "A. B. C. of the question" that seems worthy of any intelligent consideration, is the following:

"That the time has come when the public must consider whether or not all works of a public nature, *i. e.*, railroads and telegraphs, should be constructed on contract by public tender under the supervision of the State Engineer or other public officer. Unless these necessities of modern commerce are constructed by the people themselves through the machinery of Government, some law of this kind must be enacted; for such gross abuses as have been tolerated in the past cannot be suffered to go on forever."

Is it possible that we are really reduced to these two alternatives? If so we must groan on under our burdens, and try to be happy in our misery. The people themselves through the machinery of government are supposed to control these works now. The people through their legislatures grant the charters, and say under what conditions public works shall be made. As for working by the States, this has been tried in many cases, as in Pennsylvania with her canals, and everybody knows it was worse than the worst is now. We have not time or space to enter into this subject here,—all we have room for is to say of these books on our "Review table" that they show there is yet plenty of room for something better on this important topic.

A MANUAL OF THE CULTIVATED GRASSES OF THE SOUTH.—By C. W. Howard, Dilton, Georgia.

Just now "Grasses for the South" is an important topic, and anything in relation thereto is interesting.

At the outset we must remember that the needs of the South are different from those of the North, and it is not therefore so much a question as to what grasses will grow there, as how, and at what season they grow. The author of this pamphlet tells us that "grasses for the South" means grasses for "winter grazing." They do not want the "cost of cutting and curing hay, and of the construction of expensive barns, costing thousands of dollars, where cattle and sheep are housed and fed six or eight months in the year." Yet the author tells us "it will pay, and pay handsomely, to manure winter pastures." The writer of this has had many opportunities of studying southern soil culture, and the great difficulty seemed to be in the supposed southern advantage. As cattle run at pasture all winter there is no manure yard, and though it may pay handsomely to manure a winter pasture, there is no manure in the yard to make this handsome profit. In most parts of the South we have found the approved practice to be to take off two or three crops and then leave the ground to run waste for two or three more till the land shall have been manured by the natural decay of weeds on it.

From our experience we believe it will pay to build barns, and feed cattle, even though they can be left to run at large and graze all winter; and we think such a little work as this before us, showing what may be grown successfully in the South, will be useful to those who are seriously studying this question.

SAMUEL MILLER.—Among the pleasant faces seen in the East this summer, that of Samuel Miller of Bluffton, Missouri, was conspicuous. The raiser of the Martha grape, and Captain Jack strawberry is always a welcome visitor in pomological circles; while here in his old home, Pennsylvania, there are many personal friends who were glad again to shake him by the hand.

SCRAPS AND QUERIES.

PYRETHRUM CINERARIÆFOLIUM.—A correspondent from San Barnardino says: "You advertise a Pyrethrum cinerariæfolium for a firm in Stockton. There is no such plant known in our

California Botany, and I believe it is an arrant humbug."

[On looking again over the advertisements, we do not see that the advertisers claim that the plant they refer to is a native of California. Indeed they say that it is the Pyrethrum cinerariæfolium, which every good botanist knows is a native of Dalmatia, and is the plant from which the celebrated Dalmatian insect powder is made, as Persian insect powder is made from Pyrethrum roseum. We do not know whether a person has a right to call what is well known as Dalmatian Powder by another name; that is, that Californian insect powder, ought fairly to be given to the Dalmatian powder plant; but as the fair botanical name is given, no charge of intentional deception can be sustained; and after all it shows that the seed has been raised from plants grown in California, and not imported seed from Dalmatia. We may say, however, that we know nothing of the firm advertising, but there is nothing whatever on the face of it to warrant us in supposing it a "humbug." If they are not offering the true Pyrethrum that would be another matter, but we do not see why they may not have it true. If our correspondent can show this, we shall be glad to have the exact facts, for though not responsible for what appears in our advertising columns, the publisher will advertise nothing wrong if he knows it. So far we have no reason to believe the advertisers are not dealing fairly.—Ed. G. M.]

HORTICULTURAL SOCIETIES.

COMMUNICATIONS.

AMERICAN POMOLOGICAL SOCIETY.

Address of President M. P. Wilder, at Boston, Mass, Sept. 14, 15, 16, 1881.

Members and Friends of the American Pomological Society:

Once more, through the merciful Providence of Him who healeth our broken bones, restoreth our health and preserveth our lives from destruction, I am enabled to stand before you and discharge the duties incumbent on me as the ancient presiding officer of our Association. Gladly would I have been with you at the last two sessions of our Society, but God had otherwise ordered. Glad should I have been had you accepted my resignations of the office which you have conferred on me for more than thirty years, and transferred the honor to some one of fewer years, whose health, enterprise and ability would have surpassed my own. But, gentlemen, as you have declined to receive my resignation, often tendered to you, thus manifesting a desire that I should die with the harness on—no, no, I will not say die, but rather still live to co-operate with you in efforts for the perpetuation of our time-honored institution, and the promotion of its objects—and since you have provided a substitute to perform my duties in my absence, I am disposed to confide in your wisdom rather than in my own judgment, and keep working on, fulfilling whatever duty you may assign me while life and strength shall last.

When I reflect on by-gone days, and bring to mind the many old and zealous co-workers who have gone to their rest, and know before long I shall join them on the other side of the river, I am inclined to seek for rest also. But when I look around me and see so many who have labored with me from the establishment of our Society, and are here to day, and so many others from all parts of our continent who have come up to aid in the prosecution of our good work, I am inspired with the zeal and interest of those halcyon days when life was young and hopes were bright. O, yes,

> I feel the bliss of younger days,
> Bright as the beams of morning rays;
> With greetings warm and gladsome smile,
> My care-worn soul they cheer awhile,
> And fill with hope, as though in truth,
> I breathed new life, a second youth.

Happy, most happy am I again to join hands with some who aided in the establishment of our institution; who rocked the cradle of its infancy, and still survive to rejoice in its progress and usefulness. Thanks to the Giver of all good, Charles Downing, Thomas, Ellwanger, Barry, Hovey, Manning, Warder, James, Mead, and the brothers Parsons still live!

Thanks, that we are here once more in old Boston, from which primarily emanated so much

of the interest in Pomology which now pervades our whole country—here again engaged in efforts to promote the objects of our institution, and to disseminate its blessings throughout our widely extended territory. I cannot find words to express the gratitude I feel that my life has been prolonged to the present moment, and that you have come once more, during my life, to my own home, where, after many years of absence, I may renew the bonds of affection and regard with my old co-laborers, and unite with those of fewer years in advancing the science of American Pomology.

Come ye as the representatives of the various States and districts; as the delegates of kindred institutions, or as members of our own Society; come ye from the Provinces of the Dominion on our borders; from the fertile valleys and prairies of the Great West and Pacific slope; from the genial clime of the sunny, flowery South, or the vast interior of our land; from whatever section you come, we of pilgrim and puritan ancestry, in behalf of our good old Commonwealth of Massachusetts, tender to you a most hearty welcome! welcome!! welcome to all!!!

PROGRESS AND INFLUENCE.

In most of my former addresses I have spoken of the importance of American Pomology, and of the best means for the promotion of it throughout our land. But in the presence of so many eminent practitioners, renowned alike for their enterprise, skill, and devotion to the cause, and whose opinions are more valuable than my own, I shall refrain from presenting any points in detail. Nor shall I trespass on your time by a repetition of what I have said heretofore, except so far as to keep alive in our hearts the flame of enterprise and love for our favorite pursuit, and, in view of its wonderful progress and the great future that awaits it in our country, to encourage you in renewed efforts for its advancement.

When we take a retrospective view and see what our Society has accomplished already in classifying our fruits, correcting their nomenclature, in rejecting worthless varieties from its catalogue, and, by a constant revision of its columns, furnishing lists of those adapted to every section of our ever increasing fruit lands, we can easily perceive that great good has already been effected. But we can scarcely estimate the immense advantages which are to arise from its influence, year by year, in the future growth of fruit culture on this continent.

I have often spoken of this in reference to our older States, but the progress is equally remarkable in the new regions which are constantly being opened up to us. To encourage, promote and regulate this progress is the province of our Society. True, the various horticultural and pomological societies are acting in concert with us to this end, and to them we must ever look for aid in the different sections of our country. But let it be remembered that it is by the information and intelligence here concentrated that we are, by common consent, to build up and establish a pomological authority which shall be acknowledged throughout our whole land. Nor can we too highly appreciate the beneficial results which are daily being derived from these societies, all of whom pursue these noble works in their respective States, and whose discussions and reports are powerful agents in the prosecution of the general cause. When our Society was formed there were only twelve States represented in the convention; now we have enrolled in our organization more than fifty States, territories, and districts, with Vice-Presidents and Fruit Committees for each, through which are collected the experience of our best cultivators in their various locations, thus giving to the world a knowledge of the appropriate fruits for every section of our rich and varied clime.

Few are aware of the great benefits which have resulted from the free discussions of the merits of the many new varieties of fruits which are continually being brought to notice, recommending only those of promise, and discarding hundreds of kinds which would otherwise be imposed on the public as valuable sorts. Formerly it took many years to test the merits and adaptation of fruits to our several locations; now, when a new variety is promulgated, it must receive the commendation of our Society for trial before it can have an extensive sale, thus recording its relative value and adaptation, saving immense expense and delay. Our catalogue there presents from time to time the results of accumulative experience, and furnishes a text-book and guide for every section of our land. The duty of the committee is indeed arduous and responsible, but this is gratefully acknowledged, especially that of Mr. Barry, and if he were to have no other reward our catalogue will be a lasting monument to his memory.

Among the most gratifying evidences of progress are the numerous acquisitions of new and valuable varieties, by which the season of our

fruits is greatly prolonged with the accessions of early and late varieties. By the better knowledge in the keeping and packing of fruits, and the facilities of transportation, our markets are now supplied with fruits through the whole year. Instead of the strawberry for three or four weeks, as formerly, we now have it for four or five months, the peach from four to six months, the grape from six to eight months, the pear from eight to ten months, the orange and the apple the year round, and the smaller fruits in their season; so he who has the means may replenish his table daily with such variety as no other nation can produce. The progress of invention, the developments of science, and the spur of enterprise are indeed grand in other departments of industry, and in all these the fruit culture of our country is to have its share. Like the light of American civilization that first dawned on our eastern shores, and is now spreading its benign influences throughout our land, so the genius of American Pomology, which a hundred years ago had scarcely emerged from her Atlantic birthplace, has now winged her way not only from the North to the South, but over hill, valley, and mountain top down the golden slope, there to revel in the fruits of almost every clime on the globe.

In nothing, perhaps, is the happy influences of our Society to be seen more than in its suppression of the numerous inferior or worthless varieties which have been in cultivation, or are constantly being brought to notice, and with which the public are too often deceived. The enterprise and sagacity with which these are promulgated surpass any other former period, and ere the favorite of the day has started on his tour, another jumps upon the track and leaves his rival in the distance behind. The universal interest now manifested in the production of new varieties is worthy of all praise, but it is the mission of our Society to keep watch over this spirit of emulation, or, to use a harder word, speculation, and not to admit into its catalogue any fruits which are of doubtful merit. Some of the new kinds are of inestimable value, and for excellence will take their place permanently in its columns of approved fruits, while many claiming to be the wonders of the age will pass away, as thousands have done before, like a shadow flitting over the plain; or,

"Like the snow-flake on the river,
A moment white, then gone forever."

(To be continued.)

EDITORIAL NOTES.

NEXT MEETING OF THE AMERICAN POMOLOGICAL SOCIETY.—As we go to press the telegraph informs us that the meeting of the American Pomological Society, in 1883, will be held in Philadelphia.

ATLANTA COTTON EXPOSITION.—This which commences on the fifth of October, promises to be of interest, not only to Georgia, but to all the United States, and to all the interests therein. Horticulture and Pomology have not been forgotten, and the dates between October 25th, and October 29th, have been selected especially for these. $20 is offered for the best collection of assorted fruits, and various sums, $3 to $10, for samples of each of the leading varieties of Grapes, Plums, Pears, Apples, etc.

For foliage plants and blooming plants, cut flower designs, etc., the premiums are equally liberal. We are glad to learn from a personal visit from Mr. Cole of that city that the prospects for a very fine exhibition are very bright, and that horticulture in general, is very popular.

AUTUMN FAIRS AND EXHIBITIONS.—As we write, the various fairs and exhibitions are being held over the whole country, and we have in this wholesale way to return thanks for the scores of admission tickets and invitations now lying before us.

It is evident that these annual fairs are capable of being made of immense service, and it is at the same time certain that they do not do near the good which they might do. Perhaps at this time, with the matter fresh on their minds, managers might be led to reflect on the best means of progressing. Fairs and exhibitions are generally popular. People want a holiday. They like to go and see one another, and the chance of seeing an old friend, and having a talk about old times, make a good part of the attractions. But there can be no fair without the exhibitors; yet it is a notorious fact with those engaged in getting up these exhibitions, that the "committee" have generally to get on their knees and beg of exhibitors to "send something" to the Fair.

The result is that it is extremely rare that anything of any great merit is seen at exhibitions. It is a common remark from those that look on "We have much better than these at home."

Why do not exhibitors exhibit? This is the great question for managers. Suggestions have from time to time been offered in our pages. They may not have been just what is needed. Let us hear more.

THE ATTENTION OF

COMMERCIAL FLORISTS,

AND OTHERS WHO USE

PLANTS, SEEDS OR BULBS

in quantity, is directed to our **FALL WHOLESALE LIST**, which embraces

250,000 ROSES

all sizes of the kinds best fitted for **Winter Forcing** or for **Spring Sales**, to which we invite comparison of **quality** and **prices**. Our **General Florist's Stock** of upwards of

A MILLION OF PLANTS,

comprises all the **new** and **standard** sorts of **Begonias, Bouvardias, Carnations, Chrysanthemums, Coleus, Caladiums, Dracænas, Ferns, Fuchsias, Geraniums, Primulas, Palms**, etc., of various sizes, to which also we invite comparison of **quality** and **price**. Our stock of

BULBS FOR WINTER FORCING

comprises **Dutch and Roman Hyacinths, Lilium Candidum and longiflorum, Paper White Narcissus, Jonquils, Tulips, Lily of Valley**, etc.

IN SEEDS WE OFFER SUPERIOR STRAINS

Begonias, Carnations, Calceolarias, Cantaurea Chrysanthemums, Coleus, Pansy, Petunia, Stocks, Verbena, etc, LIST free by mail.

PETER HENDERSON & CO., Seedsmen and Florists

35 COURTLANDT STREET, NEW YORK.

UGUST ÖLKER &

P. O. Box 899. 44 DEY STREET, New York,

FLORISTS' SUPPLY CATALOGUE READY!

Sole Agents for the Sale of

WALZ'S IMPROVED

Large-flowering Perfection Mignonette

About 900 Seeds in a Package, at 50 Cents.

The best Mignonette for the market and Florist's use. Remarkably vigorous, free-flowering and sweet. Its size is larger than the Giant, alongside of which we have seen it flower ourselves. See Illustration in *Gardener's Monthly*, May number, 1881, page 145.

WHOLESALE BULB CATALOGUE READY!

New Illustrated Basket Sheet Ready!

Send for either if you have not received it, and examine Novelties offered.

Collectors for Mexican Orchids Forwarded to the Collectors, Messrs. Droege & Co., Mexico

R[illegible] for FLO[illegible]ISTS

Largest Stock, Choicest Varieties, Best Quality.

SIZE OF PLANTS.—We send vigorous, well matured plants, rooted last Spring, carefully shifted and ready to go at once in four-inch pots. Most varieties are from eight to twelve inches high.

IMPORTANT.—OUR ROSES ARE NOT FORCED, BUT ARE GROWN IN ORDINARY SOIL, WITHOUT MANURE OR ANY STIMULATING PROCESS WHATEVER; THEREFORE THEY REQUIRE NO NURSING, BUT WITH ONLY ORDINARY TREATMENT, WILL GROW OFF STRONG AND HEALTHY, AND COME QUICKLY INTO BLOOM. FLORISTS SAY THEY GIVE BETTER SATISFACTION AND QUICKER RETURNS THAN ANY OTHERS THEY CAN BUY.

PRICES OF GENERAL COLLECTIONS.

	Per 100.	Per 500.	Per 1000.
EVER-BLOOMING ROSES, First class assortment,	$ 8.00	$35.00	$70.00
HYBRID PERPETUAL ROSES, " "	10.00	50.00	90.00
MOSS ROSES, " "	15.00	75.00	150.00

SPECIAL ASSORTMENTS.—Persons who wish special assortments should send their lists and have them priced before making the order. This insures perfect satisfaction and the lowest price for the selection and number wanted.

TERMS.—Cash with the Order—Remittances by **Postal Order, Bank Draft** and **Registered Letter** are at our risk. **No charge for Boxes or Packing.** We guarantee safe carriage, and add liberally to offset Express charges, cost of remittance, &c.

THE FOLLOWING CHOICE SORTS ARE STILL IN STOCK:

		Per Doz.	Per 100.
INNOCENTE PIROLA,	New White Tea for Florists,	$2.50	$12.00
MAD. ANGELE JACQUIER,	New and fine, bright rosy Crimson,	2.50	12.00
REINE MARIE HENRIETTE,	New Crimson Glorie de Dijon,	2.50	12.00
MAD. ALFRED CARRIERE,	New Salmon Rose, fine,	2.50	12.00
PERLE DES JARDINS,	Finest New Yellow, for forcing,	2.00	10.00
AMERICAN BANNER,	New Striped, Crimson and White,	2.50	12.00
DOCTOR BERTHET,	New and fine, Carmine, Buds very free,	2.50	12.00
MARECHAL ROBERT,	Extra large pure White Buds,	2.50	12.00
CATHARINE MERMET,	Bright Pink, fine for forcing,	2.00	10.00
MADAME LAMBARD,	New, large Crimson Buds,	2.00	10.00
NIPHETOS,	Pure White Buds, fine for forcing,	2.00	10.00
DUCHESSE OF EDINBURGH,	Dark rich Crimson,	2.50	12.00
CORNELIA COOK,	Large Creamy White Buds,	2.00	10.00
GLORIE DE DIJON,	Creamy White, tinged with Blush,	2.00	10.00
BON SILENE,	Large Crimson Buds, excellent for forcing,	1.50	8.00
HERMOSA,	Bright Pink, profuse bloomer,	2.00	10.00
SAFRANO,	Apricot Yellow, one of the best for forcing,	1.50	8.00

For hundreds of other choice varieties see *Wholesale Trade List*, free on request to *Florists, Market Gardeners and Dealers*

Bennett's New Hybrid Teas.

We have much the largest stock in this country of these **Magnificent New Roses.** The following varieties among us among the best:

BEAUTY OF STAPLEFORD (Bennett) Darker than La France, magnificent buds, a healthy and vigorous grower and profuse bloomer, very fragrant. Price, 75c. each; $9.00 per dozen.

MICHAEL SAUNDERS (Bennett). Clear, dark Rose, large finely formed buds, a strong healthy grower, very constant and fine. Price, $1.00 each, $10.00 per dozen.

VISCOUNTESSE FALMOUTH (Bennett). Bright, Clear pink, very large size, opens well, healthy and vigorous, very distinct and valuable. Price, 75c. each, $9.00 per dozen.

Information cheerful given. Lists priced. Plants carefully selected and promptly shipped. Every care taken to give full satisfaction and please customers.

NOTICE.—This advertisement is intended for the **TRADE ONLY**, and not for private planters. Address,

The DINGEE & CONARD CO.,

ROSE GROWERS West Grove Chester Co., Pa.

GREENHOUSE HEATING

AND

Ventilating Apparatus.

ase-Burning Water Heater
hree sizes. Patented, 1873.

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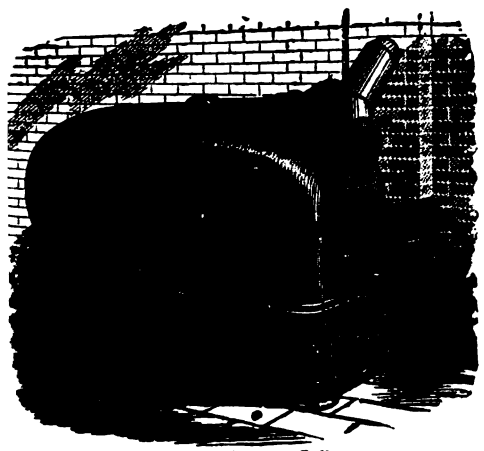

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Five sizes. Patented, 1867. New Patterns, 1873

Four Patterns of Boilers,

EIGHTEEN SIZES.

ALSO,

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IN GREAT VARIETY AND AT

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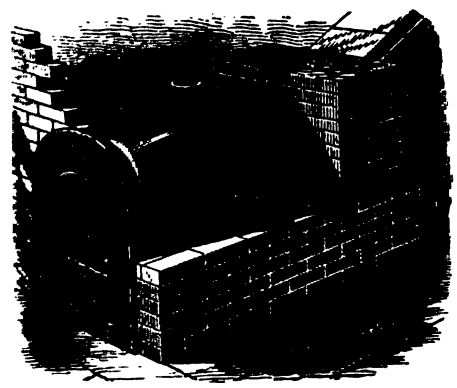

Improved Saddle Boiler.
Five sizes. New Patterns 1877.

IMPROVED

Sash-Raising Apparatus,

LIFTING-RODS FOR SASHES,

ETC., ETC.

Send 6 Cents Postage for Illustrated Catalogue, with References and Prices.

M. M. BAYERSDORFER & CO.

Prize Medal of Cincinnati Industrial Exposition of 1878, Medal and Diploma of International Exposition of 1877, "For best display of Bouquet Papers."

We beg to call the attention of the WHOLESALE and RETAIL TRADE to **FLORISTS' GOODS** to our well assorted stock for the Fall season:

BOUQUET PAPERS (ITALIENS), PASTED CARTONS,

Plain White Edges, Gold and Silver Edges, White Satin for Bridal Bouquets, Fancy Lace Paper for Weddings, Receptions and Parties.

IMMORTELLES—ORIGINAL BUNCHES.

White and all Colors.

DRIED GRASSES AND FLOWERS,

In great varieties and styles; very suitable for ornamental purposes

ORNAMENTAL GRASS BOUQUETS.

FRENCH AND GERMAN GREEN MOSS.

TIN FOIL—Best in the Market.

M. M. BAYERSDORFER & CO.,

IMPORTERS OF FLORISTS' MATERIALS,

66 NORTH FOURTH STREET.

PHILADELPHIA, PA.

Also Importers of Fancy **WILLOW** and **MOSS BASKETS**, and Manufacturers of Fancy **STRAW, BROWN VARNISHED WILLOW**, and **WHITE** and **GILT BASKETS.**

Send Orders early in Fall. Illustrated Catalogue gratis on application.

Osage Orange Plants, Fruit Seeds, etc.

FOR FALL OF 1881.

The **SPRING** was so favorable to the growth of plants that our **Osage Orange** will be remarkably fine this season. Those wanting them in large lots will meet with favorable terms.
Correspondence desired with those who may need plants, or who may want

Mazzard Cherry Seeds, Plum Seeds,
Peach Seeds, Mahaleb Seeds,

Or Seeds of any Forest Trees or Shrubs.

THOMAS MEEHAN,

au2 **GERMANTOWN, PHILA.**

The "Golden" Pocklington Grape.

I have **purchased from Mr. Pocklington and Mr. Charlton** their entire stock of this variety for two years longer (contract ending with close of Spring delivery of 1883) and am prepared to **offer inducements to dealers who want a good specialty** to place in their agents hands.

RETAIL ORDERS FILLED at $1.50 for One Year Old. $2.00 for Two Year Old.
Also the largest and best stock of

Ampelopsis Veitchii or Japan Ivy

In this Country at a Low Figure.

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FOR HEATING

Greenhouses, Graperies, Conservatories, Propagating Houses, Forcing Pits, Public and Private Buildings, Schools, Drying Rooms, and Heating Water for Baths.

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Expansion Tanks, Evaporating Pans, Stop Valves, Cast-Iron Pipe, Elbows, Tees, Branches, Pipe Chairs and everything necessary, of the best material, for Greenhouse Heating.

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Feb. 12

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Bouquet Papers or Italiens, in great varieties of Styles and Patterns. **Pasted Cartons,** in all sizes.

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Dried Grasses and Flowers, suitable for Decorations. **Ornamental Bouquets,** for Vases.

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" Pearl " " " " 25.00

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Peach Trees, Asparagus, Strawberry Plants,

Cuthbert and Queen Raspberry, **Osage Orange,** &c , &c., in large stock at **low prices** to the trade, also prime **Peach seed.**

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We take great pleasure in calling the attention of Florists to this lily, believing it will supply a want long felt. A lily that is sure to bloom and more abundantly than **Longiflorum** ever did. In addition to the main stalk it sends up numerous side shoots which also bloom, thus prolonging the season for months. For a full description of this remarkable lily, send for our illustrated circular, mailed free.

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For Heating GREENHOUSES, Hot Houses, Conservatories, Public and Private Buildings, &c.

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THOS. J. MYERS, Manager. **1173 South 9th St., Phila.**

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SAFRANO, I. SPRUNT, BON SILENE, BELLA, CORNELIA COOK, DOUGLASSIA, CAROLINE KUSTER, DUCH. DE BRABANT, PAULINE LEBONTE, and other varieties, 2½-inch pots $6.00 per 100; 4-inch pots $15.00 per 100.

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2½-inch pots $7.00 per 100; 4-inch pots $18.00 per 100.

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2½-inch pots $10.00 per 100; 3-inch pots $15.00 per 100.

NIPHETOS,

2½-inch pots $10.00 per 100.

MARIE GUILLOT,

2½ inch pots $10.00 per 100; 4-inch pots $20.00 per 100.

ROSES are in fine condition, plunged outside.

Full Assortment Greenhouse Stock.

TRADE LIST for July and August now ready.

ja.ss. ***W. L. SMITH, AURORA, ILL.***

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OFFERS THE FOLLOWING FOR OCTOBER:

	Each	Per Doz.	Per 100
Acacia pubescens, yellow flowers, graceful foliage,	$ 50	$4 50	
Acalyphas Macafeana, Marginata and Musaica,	20	1 80	$12 00
Akeila Quinata, hardy climber,	10	1 00	8 00
Alocasia Macrorhiza variegata, foliage handsome,	50	4 50	
" **Jenningsii,** foliage marked green and black,	20	2 00	
Ampelopsis Veitchii, superb hardy climber,	15	1 50	10 00
Anthericum vitatum, foliage green and yellow,	75	1 30	10 00
Azaleas, assorted flowering plants, 3-inch pots,		1 50	10 00
" " " " 4- "	25	2 40	15 00
" " " " 5- "	40	3 60	25 00
" " " " 6- "	1 00	9 00	
" " " " 7 and 8-inch pots,	2 00	18 00	
Begonia rubra, flowers bright coral,	15	1 50	10 00
" **rosea,** flowers light rose,	15	1 50	10 00
" **metallica,** foliage metal-like,	20	1 80	
" **Louis Chretien, new,** very handsome foliage,	30	3 00	20 00
Bertolonia Van Houtii, beautiful ornamental-leaved plant,	1 00	9 00	
Bouvardia Alfred Neuner, new, double white, 2-inch pots,	30	3 00	20 00
" " " " 3-inch "	60	6 00	
" " " " 4-inch "	1 00	9 00	
Caladiums, fancy, fine assortment,		1 50	10 00
Camellias alba plena, old double white, all with buds, 2 to 3 feet,	2 50	24 00	150 00
" " " " " 2 feet,	1 50	15 00	100 00
" " " " " 18 to 20 inches, 5-inch pots,	1 00	10 00	75 00
" " " " " 10 to 12 " 4- "	50	5 00	40 00
" " " " " 4 to " 3- "	25	2 40	15 00
Cissus discolor, climbing, very handsome foliage,	15	1 50	10 00
Clematis Jackmanii,	30	3 00	
Clerodendron Fragrans, white flowered, double, habit dwarf, fragrance of the Daphne,	25	2 40	15 00
" **Balfouri,** beautiful greenhouse climber,	15	1 50	10 00
Coleus of 1881, the five new imported kinds,		1 00	8 00
Crotons, in twelve kinds,	25	2 40	
Daphne odorata, 3-inch pots,	25	2 40	20 00
Dieffenbachia Bormanii, Bausei and **Picta,**	50	4 00	
Dracæna, in six kinds,	50	6 00	40 00
Eranthemum tricolor, handsome foliage, Dracæna-like,	20	1 80	
Euphorbia plenissima, new double,	50	5 00	
Eucharis grandiflora,	50	6 00	
Ficus Parcelli,	50	5 00	
Gardenia (Cape Jasmine), Florida, Radicans and Fortunii, 4 inch,		2 40	15 00
" " " " " 3 inch,		1 50	10 00
Phyllanthus Rosea Picta, handsome foliage,	50	5 00	

ROSES.

GROWN EXPRESSLY FOR WINTER FORCING.

Perle des Jardines (The Florist's Rose), 2-inch pots,		1 50	10 00
" " " " 3- "		2 00	15 00
" " " " 4- "		3 00	20 00
Cornelia Cook, Marie Van Houtell, Marie Guillot, Marechal Niel, Bon Silene, Isabella Sprunt, and Safrano, from 3-inch pots **strong grown,**		1 50	10 00

For other plants see **General Trade List** and my **Annual Illustrated Catalogue,** mailed free to all applicants.

Fine stock of **Specimen** and **Exhibition** plants always on hand. Prices on application.

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The Nurseries contain over one thousand kinds of Trees and Shrubs, besides Fruit Trees and Flowers. European, African or Asiatic orders for trees or tree seeds, receive careful attention, and usually give customers entire satisfaction.

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The undersigned offers a fine stock of the following at low rates:

NEW PEARS, NEW PEACHES, NEW CHERRIES, NEW GRAPES, NEW STRAWBERRIES, &c.

Fruit Trees of all kinds.

An Extensive Stock, viz.:

PEARS, PLUMS, CHERRIES, APRICOTS, APPLES, Suitable to the SOUTH, &c.

Grape Vines, Strawberries, Raspberries, &c.

New sorts **Evergreens, New Ornamental Trees. New Shrubs, &c., Small Sizes,** suitable for **Nurserymen** as well as **large stock in great variety.**

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Large importations direct from the leading growers in Holland. First quality Bulbs: **Hyacinths, Lilies, Tulips, &c.**

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Beautiful Hothouse and Greenhouse Plants,

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NEW ROSES, **Queen of Bedders, Bennett's Hybrid Teas, New French and English Roses.**

New Wistarias, New Clematis, Geraniums, Primulas, &c.

Everything at low rates. Catalogues mailed to applicants.

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PURE NATURAL VA. PEACH SEED.

We have secured about **all** the Crop of **Natural Seed** from **Accomac and Northumberland Cos, Va.** and unless disappointed in our arrangements, we can fill orders for the above Seed in rotation until it is exhausted, at reasonable rates. Nothing but prime seeds such as we use ourselves will be send out. Send for prices to **CHAS. BLACK & BRO.,**

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200,000

PEACH TREES for Autumn 1881 of the most approved varieties from early to late, also good stock of Plum and Apricot at the **Milford Nurseries.**

A. PULLEN,

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And a Full Assortment of Nursery Stock.

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160 acres of good unimproved land for sale in Kansas, at $5.50 per acre. au3

Foreign Grape Vines for Graperies.

We now offer the **Finest collection** of **Foreign Grapes** grown in the country. They are all **Good, Strong, Healthy, Canes,** all true to name and all in excellent **condition** for **shipping.** Below will be found list of varieties grown by us one and two years old.

Price, 1 year old, $1.00 each. 2 years old, $2,00 each.

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Lady Dow's Seedling,	**Buckland Sweetwater,**
Black Prince,	**White Syrean,**
Prince Albert,	**White Sweetwater,**
White Frontignac,	**Cannonhall Muscat,**
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We would also call special attention to our stock of Camellias, Azalias Daphneas, Acacias and a general collection of **Winter Blooming and Ornamental Foliage Plants.** tap9

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LILIUM HARRISII.

We have in this Lily a new variety of Eximium, with many peculiar characteristics of improvements over all Lilies of this species. **It blooms two or three times in succession in one season of growth.** The flowers are much larger and more fragrant than L longiflorum, and can be forced into bloom by the first of January It was awarded a **Special Premium of Merit at the Germantown Horticultural Society last March, also a Certificate of Merit by the New York Horticultural Society, held May 5th, 1881.**

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Weight 400 pounds gross per barrel. Quality guaranteed. It makes an artificial stone surface! Is cheaper and more durable than the common cements.

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ROSES, VERBENAS, GERANIUMS

and all other Bedding Plants in large quantities, also Dracænas, Palms and Hothouse and Greenhouse plants, the largest assortment in America.

Camellias and Azaleas a specialty.
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LILIUM AURATUM, December 15th,	$15.00	per 100
" CANDIDUM, August 5th,	5.00	"
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IN GREAT VARIETY AND GOOD CONDITION.

Descriptive Catalogue free on application. Wholesale List of Bulbs and Plants for dealers only mailed free.

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I offer a Large and Fine Stock of this Valuable New Plant at Very Low Prices.

Strong Plants, 2½-in. pots, $2.00 per dozen, $10.00 per 100; 3½-in. pots, $3.00 per dozen, $20.00 per 100.

ROSES GROWN FOR WINTER FORCING.

Perle des Jardines, 5 and 6-in. pots, $4 per dozen; 4-in. pots, $3 per dozen; 3½-in. pots, $2 per dozen; $15 per 100.

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Extra Large 2-year-old, 5 and 6-in. pots, $3 per dozen, $20 per 100.

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Sugar, Norway and Silver Maples and American Linden.

A Large Stock of different sizes, suitable for **Street and Nurserymen.** Prices low and furnished on application. **Nurserymen and Dealers** are invited to **inspect the stock.**

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ISOTOMA LONGIFLORA.

A large stock of this newly introduced, unrivaled Winter flowering Plant, now ready and for sale. Strong plants, in flower or buds, $1 50 each; smaller plants $1 00 each, $10.00 per dozen

For sale only by

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Illustrated Plant and Seed-lists free on application. [illegible] carefully packed and regularly mailed to all parts of the [illegible]

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[To Messrs. Froebel & Co., Zurich, (Switzerland)]

ANDROSACE LAGGERI.

100,000 ROSES.

A Splendid Assortment of EVER-BLOOMING VARIETIES

SUCH AS

La Princess Vera, Mad Margotten, Mad Falcot, Marie Guillett, Marie Sisley, Souv. de Mad Poraet, Coquette de Lyon, Malmaison, Hermosa, Countesse Riza du Parc, Chas. Rovelli, Anna Oliver, &c., 2-in. pot plants, $6 per 100, $50 per 1000

Perles des Jardins, Mad Lambard, Mad Angel, Jacquier, Mad Alfred Carrier, American Banner, $8 per 100.

Queen of Bedders, $20 per 100.

Hybrid Perpetual Roses from 2½ in. pots, $8 per 100, $70 per 1000.

Moss Roses from 2½ in. pots, $12 per 100.

" " Extra strong budded plants, 2½ to 4 ft. high, $25 per 100

Hydrangea Hortensia Variegata strong 4-in. pot plants, $20 per 100

" " " 2½-in. pot plants, $10 per 100.

Hydrangea New Climbing 2½ in. pot plants, $12 per 100.

Cyclamen Persicum, nice plants from 3 in. pots, $8 per 100.

Bouvardia New Double White, Alfred Neuner, $20 per 100.

Bouvardias in Variety, 5-in. pot plants, $12 per 100.

Hibiscus in Variety, 4-in. pot plants, $15 per 100.

Also a large stock of Maple and Elm for street and park planting and everything in the Nursery line. Prices on application.

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THE CHICAGO WEEKLY NEWS

[illegible]

Chicago Weekly News
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Spiræa Japonica,

FINEST IMPORTED CLUMPS, $8.00 per 100.

LILY OF THE VALLEY,

Finest selected blooming crowns, $16.00 per 1,000.

TUBEROSES,

Double White and Pearl.

Large, sound, blooming bulbs, first-class, $15.00 per 1,000

The above will be **READY FOR SHIPMENT** about the **MIDDLE OF OCTOBER.** All being first quality, I feel confident they will give purchasers entire satisfaction.

Seaforthia elegans, 2½ ft. high	$1.50 each
Corypha Australis, 1 ft. high	3.50 per doz.
Latania Borbonica, 1 ft. high	3.00 "
Dracæna terminalis, 1 ft. high	2.00 "
" elegans, 1 ft. high	1.50 "
Cyclamen persicum	from $1.00 to 2.00 "
" " giganteum	" 2.00 to 3.00 "

[All Strong Blooming Bulbs.]

Roses, Safrano, 4½-in. pots, strong ..... 12.00 per 100.

Roses from open ground, extra sized bushes, averaging 3 to 4 feet high, consisting of Appoline, Louis Phillipe, Reine de Lombardy, Pæonia, La Reine, Washington, Pink Daily, Moss, and other good sorts unlabeled, $16.00 per 100.

ALEX. SCOTT,

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SPECIAL OFFER.

Apple Trees, 3 and 4 years,	$10 per 100.
Heliotropes, Mad. Blon, etc.,	4 "
Verbenas, Fine Assortment,	3 "
Geraniums, Best Varieties,	5 "
Coleus, good Collection,	4 "
Tuberoses, Ready Oct. 15,	3 "

No Charge for packing or delivering to forwarders

o.2 **F. WALKER & CO., New Albany, Ind.**

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J. C. VAUGHAN, 42 LaSalle St., Chicago, Ill.

WALTER ELDER,

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Attends to all branches of his business on reasonable terms.

Something New in Water Heaters. Please Take Notice.

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lectional Extension Water Heater.

Especially adapted to the heating of

Greenhouses, Baths, Conservatories,

d other buildings where the Hot Water system is desired.

This Heater is composed of sections, and can be enlarged or diminished in size at will.

By removing the impacting sections it becomes a first-class saddle boiler.

It can be used in connection with a flue along the ground, or not, at pleasure.

It requires no fire pit, where water is liable to extinguish the fire.

It burns soft coal as well as hard, and does not clog up with soot.

It has more heating surface in proportion to its size than any other boiler in the market.

It is the *cheapest* and most durable first-class boiler made.

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t.au.12

Lady Washington Grape Vines.

SPLENDID PLANTS 6 to 8 feet high, at LOW RATES, also WELL-RIPENED WOOD of the above.

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12 Aug. 15, 1881 ROCHESTER, N. Y.

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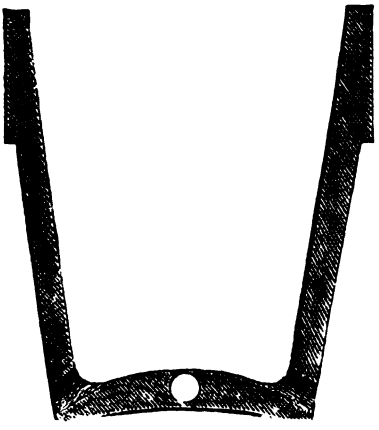

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THE

GARDENER'S MONTHLY
AND
HORTICULTURIST.

DEVOTED TO HORTICULTURE, ARBORICULTURE AND RURAL AFFAIRS.

Edited by THOMAS MEEHAN.

Vol. XXIII. NOVEMBER, 1881. Number 275.

FLOWER GARDEN AND PLEASURE GROUND.

SEASONABLE HINTS.

Insects on fruit trees and vegetables worry the gardener, but they are no less the plague of those who garden for the pleasure of looking at beauty, as well as those who labor for something to eat. It seems too bad to have to say that there is as yet no royal road to insect destruction. The "sweat of the brow" is the only effectual way to deal with the enemy. This is of little use when the insects swarm in numbers. When, for instance, we are asked what will protect us from the elm leaf beetle we are compelled to say we do not know. But there are many things which can be remedied by a little hard work, and just here it is a pleasure to say that the hard work is not always as hard as the prospect seems. A terrible pest is the bag or drop worm—terrible if left alone. It is very fond of evergreens, especially those of the Arbor vitæ tribe. It eats the green leaves, and nothing is so fatal to an evergreen as the loss of its leaves. If the bag worm is not interfered with it will kill the plant surely in the feed between June and September. It makes the lover of trees sad when traveling through the country to see the many hundreds of valuable evergreens that have been tended by loving hands for many years, suffered to die by a few months neglect. Not only evergreens, but deciduous trees are attacked by this insect, though not with such suddenly fatal results. The neglect of the insect is amazing, and it is this which leads to the prominent notice here. Not half a mile from where this is written is a lovely spot, famous in the history of our country and well worthy of all praise by the care which the owner takes to preserve all the historical mementoes, and yet make the place beautiful by the use of modern art. A few years ago a talented landscape gardener was employed to renovate the grounds, and numerous rare trees were added to the older rich collections. That it is not for mere show, but for intelligent enjoyment, is evident to anyone who travels the highway, and who may often see the members of the family walking through the grounds and enjoying the growth and flowering of their vegetable treasures, yet here are rare trees completely devoured by these pests, which may be seen from the roadside as thick on the branches as confectionery on a well-trimmed Christmas tree. Ten or fifteen minutes would clean the whole corps from a tree in July, soon after their first appearance. It is too late to do anything now. The bags are empty, but do not forget them next year. But there is one enemy which can best be attacked now and all through the winter. So far as we know now it has yet no common name, but the cocoons may be seen on the trunks and main branches of city trees, looking like lumps of white wool. It is the product of a night moth which seems to follow the English sparrow,—progressing rapidly wher-

ever that bird goes. It seems to know that its nocturnal habits render it safe from that bird's voracious maw, which likes nothing better than soft insects for its young, along with the fruit and seeds which it also loves. The caterpillar, being hairy, is also safe from the bird; but the cocoons can be so easily destroyed in the winter by painting the trunks with any oily substance, that there is no excuse but absolute ignorance for the greater part of the evils these insects do. In these days of cheap horticultural papers we do not know that even this excuse is a fair one. As a further encouragement to this painting of the bark, in order to destroy insects, it may be remarked that it aids the bark in throwing off that which is useless, and thus adds to the growth and health of the trees.

COMMUNICATIONS.

UNDER THE HAWTHORNS.

BY WM. T. HARDING, MOUNT HOLLY, N. J.

Happy is the man who understandingly communes with nature, and,

> "Finds tongues in trees, books in the runn'ng brooks,
> Sermons in stones, and good in everything."

So wise, and happy a mortal, would intuitively love to linger beneath the boughs of the goodly thorn. Neither the historical oak, classical myrtle, laurel, or palm, has a more romantic renown, than clings to the Hawthorn, of poetical and legendary fame. The tender swain seems to find love's elysium under the trysting tree, and thus passionately pleads:

> "Bonnie Mary Hay, will ye gang wi' me
> When the sun's in the west, to the hawthorn tree?
> To the hawthorn tree, in the bonnie berry den?
> And I'll tell you Mary, how I love you then."

As the seductive theme seems to run smoothly, I am tempted to quote Lauder's observations on the subject. Alluding to Gilpin's remarks on the hawthorn: "Even in a picturesque point of view, which is the point of view in which he always looks at nature, the hawthorn is not only an interesting object by itself, but produces a most interesting combination, or contrast; as things may be, when grouped with other trees. We have seen it hanging over rocks with deep shadows under its foliage; or shooting from the sides in the most fantastic forms, as if to gaze at its own image in the deep pool below. We have seen it contrasting its tender green, and delicate leaves, with the brighter and deeper masses of the holly and alder. We have seen it growing under the shelter, though not under the shade of some stately oak; embodying the idea of beauty protected by strength. Our eyes have often caught the motion of the busy mill-wheel, over which its blossoms were clustering. We have seen it growing grandly on the green of the village school, the great object of general attraction to the young urchins, who played in idle groups about its roots; and, perhaps the only thing remaining to be recognized when the school boy returns as a man. We have seen its aged boughs overshadowing one-half of some peaceful woodland cottage; its foliage half concealing the window, whence the sounds of happy content and cheerful mirth came forth. We know the lively season,—

> 'When the milkmaid singeth blythe,
> And the mower whets his scythe,
> And every shepherd tells his tale
> Under the hawthorn in the dale;'

and with these, and a thousand such associations as these, we cannot but feel emotions of no ordinary nature when we behold this beautiful tree."

Such an example of exquisite word painting by so experienced a master, is exceedingly beautiful. Its equal is only to be found in the consummate limning of gentle Goldsmith, whose marvelous touches of tenderness and pathos, always reach the heart. It would hardly be possible to draw a fairer picture of men and things, as he saw and portrayed them, in fewer words than the following:—

> "The hawthorn bush, with seats beneath the shade,
> For talking age and whispering lovers made."

Could your correspondent only find language half as sentimental, while essaying the subject of hawthorn growing, he would undoubtedly enlist a legion of tree lovers, eager to shoulder a spade, and earnestly demonstrate their zeal at planting. To espouse a cause so conducive to health and happiness, would be eminently proper for all "fair women and brave men." And the much neglected, though very comely hawthorn, is the companionable, and debonair little tree, I desire to interest all good folks in fostering. Both ethereal and pastoral pleasures will naturally combine to enthuse our hearts, while peacefully strolling among the wildlings, along the forest margins, where they too often blossom and blush unseen. And with unalloyed happiness, thus blending with recreative joys, while selecting

and marking the various kinds when in full foliage for identification and removal afterwards, will be a labor of love, far more refreshing and satisfactory than we often engage in.

Ohio seems to be abundantly stocked with many wild species; especially in Franklin and Wyandot counties. In the last named county may be found some very charming landscape sketches, where many fine examples of crab and thorn growths may be seen in all their various contours of graceful beauty.

A mind sensitive to the charms of nature, which happily feels and appreciates the pure delights of a quiet ramble through primeval forest glades, dingle and dell, will there find much to his heart's satisfaction.

Snugly ensconsed in the cosy corner of a copse, the writer discovered there specimens of remarkably large old thorns: Cratægus coccinea, C. prunifolia, and C. cordata. They were huge and grotesquely shaped, gray with usnea, lichen and moss, and were altogether as striking in aspect as hoary old time could make them. Looking upon the sylvan picture, I thought with what ecstatic feelings Ruskin would have viewed it, whose admiration for natural beauty, and florid descriptions thereof, are so remarkably rich in original metaphor and gorgeous imagery.

Then, again, there were others spruce and gay with foliage and flowers, richly scenting the morning air,

> "O'er fell and fountain sheen,
> O'er moor and mountain green."

The recollections of old familiar friends, like well-remembered trees, are happily lasting, and leave indelible impressions of bygone times.

One of the best specimens of Crus-galli, or cock-spur thorn in Wyandot county, is growing upon the lawn of one of the æsthetic citizens of Upper Sandusky, on the corner of South street and Sandusky avenue. Taken altogether as regards size and symmetry, it is unique, and no fairer scene indicative of domestic bliss or social friendship, can well be imagined than the circle of happy friends often gathered beneath its ample shade. There is also in the same grounds a handsome bush of C. oxyacantha or English hawthorn, of both which the jolly warm-hearted proprietor, and his amiable helpmate are equally proud.

These very beautiful bushy little trees are of all deciduous kinds, as well adapted for ornamentation as any the landscape gardener would wish to handle. With the use of the pruning knife or shears, they may be made to assume any desirable form; or, if left to their own natural bent will please every eye susceptible to the impressions of arborescent beauty. Botanists enumerate some twenty-four distinct species with several varieties belonging to most of them, natives of the United States and Canada. Annexed are a dozen kinds which the enthusiastic amateur may easily find where hawthorns generally grow. To wit: C. parvifolia, a minor of but three or four feet high, while its dapper companion C. nana rises from four to five feet high, and is slightly over-topped by its six or seven feet compeer, C. virginiana Ascending in altitude from ten to thirty-five feet, are the majors; C. spathulata, C. flava, C. apiifolia C. crus-galli, C. salicifolia, C. macrantha, C. coccinea, C. prunifolia, and C. ovalifolia.

There are also a number of foreign species and hybrids, many of which are highly ornamental, and may be had at most of the first-class nurseries.

In taking leave of this very agreeable subject, let me, if possible, induce the kind and patient reader to plant at least one hawthorn, in some suitable spot, where it may remain an organic memorial of the planter, after he has gone from the glory of this world, whose fashion so soon passeth away.

HARDY TREES.

BY E. MANNING, HARRISBURGH, FRANKLIN CO., OHIO.

I thought a few notes on the effects of the pas winter might not be amiss at this time. Picea Parsonsiana was slightly browned; Nordmanniana much marbled, with loss of half its leader; oasiocarpa slightly browned; Pichta unhurt; cilicica slightly browned, and Cephalonica badly injured, with loss of entire leader; Numidica killed root and branch; nobilis considerably browned and top partly killed; grandis slightly and amabilis badly browned; Abies Engelmanni had not one spine discolored; and although Orientalis was badly browned it was otherwise uninjured. Alcoquiana was untouched polita was slightly browned; but Williamsoni Canadensis, Macrophylla, pendula and Silver-leaved all unhurt. Menziesii was killed outright. Taxus elegantissima was badly injured, and Cupressus Lawsoniana badly browned. Thujiopsis borealis got through uninjured. Illeopaca though badly browned was otherwise uninjured. Retinospora pisifera was not discox

ored, but plumosa was badly browned as also was aurea. Pisifera was badly injured. Biotas and Thujas generally escaped with but a slight browning. Mahonia Japonica and Bealii were killed to the ground. Magnolias all passed pretty well; some had most of their flower buds killed; Thompsoniana was entirely uninjured, and has bloomed finely. All the Birches have escaped uninjured; as also did Alnus imperialis. Cercis Canadensis, sixteen feet high, was killed to the ground; Japonica was killed to the ground, as it is every hard winter. Salisburia adiantifolia and macrophylla, seventeen feet high, and variegata, six feet, were unhurt. Phillodendron amurense, five feet, killed to the ground. Junipers glauca, Japan, American, viridis pendula, Swedish and varieties, and Chinese uninjured, but aurea was badly browned. Five varieties of the variegated had all the green unhurt, but the variegation was badly injured. Populus variegata uninjured. A specimen of Dimorphanthus Mandschurica on high ground was killed to the ground, but one or two others were uninjured. Of Japan maples atropurpurea had its top partly killed; pinnatifolium atropurpureum, top partly killed; roseum pictum and reticulatum killed, Virgilia lutea, Taxodium distichum and pendulum were unhurt, and Liquidambar but slightly cut Vines, Wistaria sinensis unhurt; multijuga killed to the ground. Ampelopsis Veitchi was killed to the ground, and Euonymus radicans badly injured. Lonicerias mostly passed well, and Quercus Concordia was unhurt. Of Cercidiphyllum Japonicum I received one plant last spring. It was quite out in leaf. I planted it out and it has made shoots already over one foot long, and has every appearance of being hardy. It is a splendid tree with small, very handsome leaves.

RARER ORNAMENTAL TREES AND ORNAMENTAL GARDENING.

BY SAMUEL PARSONS, JR.

(Prize Essay for Massachusetts Horticultural Society.)

(Continued from page 292.)

Eleagnus longipes, the Japan oleaster growing near, is another striking and curious plant. It is of small size, with spreading, somewhat irregular branches, and leaves bright-green above and silvery-white beneath, studded with brown scales. The small, yellowish flowers are produced in great profusion on long stalks, and are succeeded by berries of an oblong shape and deep transparent orange-brown color. These berries are likewise speckled with brownish scales.

I cannot help remarking on another eleagnus on this lawn, E. argentea. It is not only comparatively new, but very choice and rare. Silvery-leaved plants are always interesting, and this is perhaps the most silvery-leaved plant known to our lawns. The leaves are of good size and rather long, and the plant has generally a somewhat straggling habit, but the sheen of its silver is always unsurpassed. It seems to be very hardy, too, which gives an additional reason for noticing it here. But what is this creamy white cluster of flowers growing like those of a deutzia? The odor is delicate and delightful. Large, roundish leaves, however, distinctly mark its difference from the deutzia. Altogether it is a very decided acquisition, bearing the rather difficult name, pterostyrax hispidum. Styrax Japonica has deutzia-like leaves, but very different flowers. It is less striking in appearance than pterostyrax hispidum. Here, also, is an actual deutzia, with leaves marbled with silver, and a new Japan quince, remarkable for unusually large, rosy pink flowers, double the size of the familiar form of pyrus Japonica. Another of these Japan quinces also attracts us with its tri-colored pink, white and green foliage.

Little globes of curled and crisp dark green leaves, minute and very compact, may be seen here and there about the house, covered with small red flowers, that bloom off and on all summer. It is spirea crispifolia, doubtless a variety of S. callosa. Very dwarf and free flowering, it is one of the most useful shrubs of this character. We note also rhodotypos kerrioides, a very pretty shrub, something like a small blackberry bush in general appearance, but more delicate and covered with numerous small white flowers shaped not unlike those of an althea. Somewhat prominent, also, is weigela Lavallee, with chocolate-colored flowers blooming freely a second time during the latter part of the summer.

I must not forget to call your attention to a larger shrub on this part of the lawn, which you will doubtless recognize as a sumach. It is much larger and more tree-like than our common form, and quite spreading. It is Rhus Osbeckia Japanese sumach of much rarity. The leaves of this sumach have the wing peculiar in a greater or less degree to the midrib of that plant, so enlarged as to be very striking, especially during the intensely scarlet glow this plant takes on in fall. No color can be finer than the autumn tints of Rhus Osbecki. The flower in June is, moreover, very effective.

Among the Asiatic shrubs I may very properly here call attention to certain new magnolias They occupy, in two cases at least, the transition point between trees and shrubs, but they are more properly shrubs, since their peculiar beauty demands that their branches be preserved close to the ground, which gives them in everything but size the effect of a true shrub. The really shrublike magnolia is Magnolia Halleana or Stellata, the most compact and slow-growing of its race. It has been introduced from Japan for many years, but has not until recently been received with anything like the attention it deserves. The leaves are dark green, somewhat small for a magnolia, and given to disposing themselves in very picturesque masses. If it is the most dwarf of Asiatic magnolias, it is also the hardiest and most readily transplanted. Its prime charm consists in its flowers. They are more than creamy-white, they are snow-white, with a peculiar brilliance of texture; but more than all, they are delicately fragrant, more fargrant than any other hardy magnolia, except the one I am about to point out to you. When open, these flowers, which come earlier than the bloom of any other magnolia, and before the leaves, remind one of the star-shaped clematis, but in their loveliest form, half opened, their graceful curves are like those of white water-lilies. The earliness and beauty of this flower, and the sudden manner in which it bursts into bloom, indicates a capacity for producing early forced flowers of the finest quality. I only wonder florists have not recognized the value of this fact. Magnolia Halleana occupies the outskirts of an irregular group of different magnolias, situated near the boundaries and not far from the house. Back of it, and very conspicuously placed, is the latest attraction from Japan, magnolia parviflora. It reminds one of a large-growing magnolia glauca, our common sweet-scented swamp species. The leaves are rich and massive, and the general habit as vigorous as any of the Asiatic magnolias, but the flowers that bloom in June are simply charming. Beautiful also, exceedingly, in a curving cream-colored cup of petals, the stamens and pistils unite into a crimson elongated mass that contrasts most effectively with the surrounding white. Yet, attractive as all these qualities are, the odor surpasses them altogether. Doubtless you know the half hardy Southern Magnolia fuscata. If you do, you may conceive something of the degree of sweetness of Magnolia parviflora. From a plant standing near the far end of a greenhouse one hundred feet long, the spicy odor impresses you immediately on opening the door. A large magnolia parviflora has proved perfectly hardy for several years, and good judges declare it a great acquisition.

To be continued.

EDITORIAL NOTES.

Language in Flowers.—The working of names with leaf plants, in Mosaic beds, or otherwise in flower gardens, is often attempted, but not always with neatness. Some of the government grounds at Ottawa the past season, have been pronounced models of skill in this line. One is a circle touching the points of an eight-rayed star, with the word "of" in the centre. Around this is a wider Circle, with the word "Dominion" over the "of" and "Canada" below. Another represents a beautifully worked rug exhibited on a circle, with the words "Trust and Hope" tastefully arranged on the rug.

Wild Roses for their Ornamental Fruit.—Almost all the wild species of roses have very sweet and showy flowers, which merit for them a place in a choice flower garden; but some of them have the merit of very showy fruit, which gives them an attraction through fall into early winter. Among the best for this purpose is the English Dog Rose, Rosa Canina; Cinnamon Rose, Rosa Cinnamonea; and the Carolina Rose, Rosa Carolina.

Hardy Double White Primroses.—These still stand unrivalled as hardy edging plants. Like other members of the Primrose family, they delight in cool shaded quarters in summer, for if fully exposed to strong sunshine they lose most of their foliage, and if dry at the root for any length of time, die away altogether, a mishap which may possibly account for the comparative scarcity of this variety. We find it to do best on the north side of a hedge or other screen, and the best time to increase it is directly it ceases flowering, or hot dry weather sets in. Every crown of it should be planted separately on rather stiff soil, and kept moist until well established. A few evergreen branches may be used to produce shade if north borders are not available. In nurseries where large quantities of similar plants require protection more from summer heat than winter cold, a thin layer of straw is frequently employed for this purpose with good results.

We find this Primrose to succeed well as a permanent edging plant for beds of choice evergreen or deciduous shrubs, as the shelter afforded by the latter in spring when the Primroses are in bloom protects the purity of their blossoms, and the shade in summer is just what the plants require. Well established clumps produce such a profusion of bloom as to quite hide the foliage, and the blooms are so very double and of such pearly whiteness, that they form a good substitute for choicer flowers in floral decorations. We sometimes use them for spring gardening, but in freshly-dug beds the purity of their blossoms gets marred by heavy rains much more than in permanent plantations in sheltered positions.—*Gardening Illustrated.*

TWO COLORED MOSAIC BEDS.—*Revue de L'Horticulture Belge* notes that attempts to make Mosaic beds often fail from attempting too much in one bed. It says that a very pretty effect may be had from two plants, only, in the following design, the small circles being devoted to Alternanthera, and the balance of the bed to Echeveria.

HARDY CACTUSES.—Since it is known that quite a large list of species will endure a considerable amount of frost, and that all kinds do well planted out in summer time, there is some attention being given to them in American gardening. Haage & Schmidt's Catalogue has drawings of a number of species.

LILY DISEASE.—As most persons know, the great enemy of Lily culture is a fungus disease. Thousands die out, and no one knows why. The *Gardener's Chronicle* states that the fungus has at last been identified by Mr. Berkely, who finds it to be Ovularia elliptica, and closely allied to the Perenospora infestans, which causes the Potato disease.

GOLDEN GATE PARK, SAN FRANCISCO.—This comprises 1,050 acres, and is very popular; 1,600,000 persons visited it last year. There are immense green-houses, and the fine collections have been recently enriched by Sikkim Rhododendrons from Sir Joseph Hooker.

SCRAPS AND QUERIES.

NEW COLEUS.—We have from a number of correspondents leaves of seedling coleus, of which all we can say is that they are very beautiful. Their exact value in ornamental gardening must be ascertained by direct competition, one with another. It is evident that good kinds are easily raised.

MULE PINKS.—These, which are hybrids between the Chinese pink and Sweet William, are very pretty border flowers. Mr. J. G. Eisele, one of Philadelphia's rising class of intelligent florists sends us some strains of his own by direct use of the two species as parents, which are very beautiful indeed.

WILD FLOWERS FOR A CHILD'S GARDEN.—A Nevada correspondent writes: "In a spring number of Mr. Vick's magazine he suggested that children should cultivate some wild flowers of their vicinity. One of my little ones selected Mimulus Lewisii, and it grew and flourished for him. He had a border of blue lobelias round it. Every one admired it. Another little one tried an orchid Habenaria leucostachys. After moving it about daily for over a week it grew and flowered well, with the flower stalks tied up where they had bent down by withering during their frequent removals."

DOUBLE GLADIOLUS.—"A. D. W.," Galion, O., writes: "I have growing in my garden a double gladiolus, a sprout from La Candeur. This is somewhat unusual, is it not? I never heard of such a thing before. The color is a flesh white, streaked carmine and scarlet throat; has to each flower seventeen petals, and spikes are two feet long."

[Unusual—and it will be a valuable variety if you can get it to reproduce itself from bulblets, as we know of no reason why it should not.—Ed. G. M.]

GREENHOUSE AND HOUSE GARDENING.

SEASONABLE HINTS.

Nurserymen who have opportunities of knowing tell us that of late years there has not been the same taste for extensive, out-door gardening as at one time. Not but that there are not many pretty places forming, but they are not in proportion to the increase in population —not what one would expect from the pleasure which such gardening would give. But the reverse of this is true of house gardening. The love for window flowers or for plant cabinets attached to dwelling rooms seems to be increasing in popularity from year to year. In all decorations, whether for the dinner table or special festive occasions, both living plants in pots and cut flowers enter largely. They are expected to be present, and the welcome does not seem complete without them. When the host has them not they have to be furnished by the florist, and are, of course, a considerable item of expense. Those who grow them themselves have, therefore, not only the pleasure which flower culture involves, but also are able to save in some degree the expense which inexorable social laws involve. Such considerations seldom enter into the mind of the true flower lover, but we can see how well the love often reaps a substantial reward. In advising what aspect to have for plants one can only say that, if flowers are an object, sunlight in winter is of great importance; but if the room is so situated that sun cannot be had, one must be content with ferns, palms and leaf plants. The same remark is true of a greenhouse as of a room. Where flowers are desired in winter all the sunlight possible should be encouraged. It is this fact which makes a steep pitch to a greenhouse of the first importance, though there are some advantages in favor of flatter roofs. In regard to the atmosphere of room plants it is often thought desirable to have it very moist, but it is rather the gases from the furnaces and the gas burners which make it so difficult to raise plants in rooms. The slightest taint of burnt sulphur is an injury to vegetation. If one can succeed in keeping out of a plant atmosphere these troubles the dryness of the atmosphere need give little concern.

COMMUNICATIONS.

LARGE ROSE BUSHES.

BY S. L. W., NASHVILLE, TENN.

An interesting description in the June number of the MONTHLY of a Lamarque rosebush at the greenhouses of Mr. Wm. Syred, of St. Louis, Mo., reminds me of a Lamarque and a Solfataire at the nursery and floral establishment of Mr. L. C. Lishy, near this city. The house in which these roses grow is a span roof, one hundred feet long by sixteen feet wide, built north and south. These two roses are sixty feet apart; were planted twenty years ago, and are supposed to be the largest ever-blooming rose bushes under glass in the world. They are about the same size, measuring eighteen inches in circumference at the base, and seven to eight inches many feet beyond. The main branches are trained on light collar beams under the angle of the roof from one end of the house to the other. Buds may be gathered from both varieties at each extremity. It would be almost incredible to tell the number of buds these bushes produce during the growing season. Mr. Lishy has many other varieties planted in this house, all on their own roots; among them Estella Pradell and Marechal Niel, which are but little behind the two first named in size. The house is strictly a "rose house."

RHODOCHITON VOLUBILE.

BY CHARLES E. PARNELL, QUEENS, L. I., N. Y.

The twining Rhodochiton volubile, is an old but rather rare summer climber to be found in only a few collections at the present time.

Why it is thus neglected is to me very strange, but I notice that the name is not to be found in any of the catalogues of our nurserymen, with the single exception of Mr. John Saul's, so that the lovers of pretty vines have but little chance to become acquainted with this singularly interesting climber.

It is a half shrubby climber, with a slender purple stem, and alternate cordate leaves of a bright green color, the under side having some-

what of a purplish tinge; the singular flowers being produced from the axils of the leaves on footstalks upwards of three inches in length. These footstalks are also of a light purplish color, and are somewhat twisted. The singular flowers are composed of a large calyx, of a purplish rose color, and the corolla tube is about one and three quarters of an inch long, of a deep purple color, and in well-grown and healthy specimens are produced in the greatest abundance from July till frost. The quantity and profusion of bloom depend most essentially upon the manner in which the plant is grown, so that the finer the plant is grown the more profuse will it bloom.

To flower this pretty species to perfection in the open air, prepare the place where the plant is to stand by digging the soil to the depth of two feet at least, and working in a good portion of well-rotted manure or leaf mould. After all danger of frost is over set out a good, strong and healthy plant; give attention as to training, and in the event of dry weather a thorough watering should be given at least once a week. On the approach of frost cut the plant back, take it up and pot it carefully, using ordinary potting soil. If given a light, warm and airy situation it will occasionally produce a few flowers during the winter months, if it can be kept free from the red spider to which it is unfortunately very subject; and on this account it should be frequently and freely syringed when grown under glass.

Propagation is effected by cuttings.

GARDEN NOTES.

BY MRS. M. D. WELLCOME, YARMOUTH, MAINE.

The novelty Abutilon Firefly, of which I gave a description in the August MONTHLY, has grown from a tiny plant of four inches to a height of twenty-six inches, two stalks with several collateral branches, and these are full of buds, forty clearly developed, and evidences of others so apparent that I may safely expect at least fifty. I can but look with great interest at the flowering of a plant which is a cross between an Abutilon and a Hibiscus.

When we feel especially pleased with any new plant, i. e., new to us, we want to tell others about it, so that they may add it sometime to their collection. Three months ago I had sent me from Washington a tiny Torenia Fournieri superbens. It is now only about four inches in height, has half a dozen branches, and for two months has bloomed profusely. It is constantly full of buds and flowers, sky blue, with rich, dark, purplish-blue spots on edge of petals, orange spots on one, and yellow throat. It is admirable either for a pot plant or open border. T. Asiatica is similar, flower darker, and the plant has more of a slender and spreading habit—not so free a bloomer. They grow readily from seed and bloom the first year.

My Bouvardia Humboldtii is now in the fullness of its beauty. Height, three feet; a mass of stalks and branches full of buds, and exquisitely pure white, fragrant flowers; borne in trusses; their tubers are three inches in length; continues in bloom a long time. It is quite rare. I have no trouble in keeping it in the cellar during the winter. The great novelty, double white Bouvardia, Alfred Neuner, is lovely, with its three rows of waxy petals, resembling a miniature tuberose.

A fine new plant, with rich and varied tints, is quite a valuable addition to my ornamental foliage plants. Like most of the Washington collection, it has a hard name, Phyllanthus rosea pictum. No two leaves show the same tints. Some are bright crimson, some are dark green, some cream color, tinged with a delicate blush; others have a bronzy hue, shaded with crimson; some are dark green, with blotches and spots of rose white; others are tri-colored.

Philodendron Lindenianum has leaves of a delicate, satiny green, shaded with metallic olive color on the upper surface. The under part is plate green, ornamented with bands of maroon. On the young leaves these dark bands penetrate through to the upper surface, giving the coloring a very striking effect.

A deciduous shrub proves to be a very attractive one—Dimorphanthus Mandchuricus. Its multiplied leaves grow to a yard in length and about as much in breadth, and are very handsome. When mine came packed in a box with many other plants it had two leaves about three inches in length; they now measure twenty-three and twenty in breadth, with others from ten to fifteen. It is a native of Mandchuria and therefore perfectly hardy.

COOL ORCHIDS—STANHOPEAS AND EPIDENDRUMS.

BY W.

As the desired end of all our endeavors in the culture of plants is to obtain a knowledge of their requirements, that resulting from practical experience is of the most value. Referring to

the above orchids I would state that I find Stanhopea Wardii as amenable to cool treatment as the Mexican species, and have bloomed it as easily and as well the past summer, notwithstanding it comes from Venezuela and is assigned to the intermediate house by most authors. The beautifully spotted, golden blossoms, are delightfully fragrant, though not more lasting than those of the other species. I can now say with certainty that culture out of doors, in a partially-shaded locality from May to October is in this latitude (Virginia), an assured success, and Stanhopeas look healthier and appear to do better than under glass. They have repaid with a profusion of bloom the past summer, several plants having three spikes of flowers and on one spike ten blossoms.

As far as tested the same out-of-door treatment succeeds well for Epidendrums also, and an enthusiastic grower of orchids in Maryland is firmly of the opinion that all the cool orchids may be successfully grown in summer, under the shade of trees, and thrive better than in a greenhouse not kept sufficiently cool.

It was not my intention to include E. bicornutum among those needing cool treatment, well knowing it is not so regarded, though as printed my language may bear that construction. I have had little experience with it. The statement I made being all I can say practically, but a friend grows it and blooms it successfully in a cool house with no extra amount of heat. He gives it a warmer place than other Epidendrums, and though it is usually considered difficult to grow and flower he does not so regard it. I have grown and flowered small plants of E dichromum in a cool house, but he has grown large plants to perfection and with strong spikes of large flowers. He does not consider it a "miffy" orchid, but to get the full effect the plant must be large; then it is grand and it remains long in bloom.

Epidendrum vitellinum majus is a very satisfactory plant for the amateur. One that was in bloom four months from last Christmas has now a fine spike of twelve to fifteen flowers and buds of the well-known and brilliant orange-scarlet. I grow it best on a block, with a little moss, but it will succeed in a pot or pan near the glass in sphagnum. I shall try A. J. E's. (page 233) method of growing on the bare wood, and doubt not it will succeed as well as some other Epidendrums, and several Lælias and Cattleyas. Coming from a cold region it seems to require much moisture at the roots. Epidendrum nemorale majus succeeds well and blooms profusely under the same treatment with sphagnum upon a block.

If opportunity offers I will send you a few words regarding Oncidiums, many of which are very easy to grow well, and are very dainty and pretty.

EDITORIAL NOTES.

ISOTOMA LONGIFLORA.—Mr. John G. Eisele, of Philadelphia, sends a specimen for name, which proves to be this plant. It was first introduced from the West India Islands about one hundred years ago, but seems to have been lost to culture; but now, when white fragrant flowers for fall and winter are popular, it may be regarded as a good re-introduction. The habit of the plant is as the common Cardinal flower, Lobelia cardinalis, but the flower has a tube three or four inches long, and the white, waxy limb of the corolla is nearly an inch across and sweet-scented.

A NEW CONSERVATORY IN THE MISSOURI BOTANICAL GARDEN.—In our pages note has been made of the beautiful winter conservatory, made of brick and glass, in the Tower Grove Park at St. Louis. The excellent idea has occurred to Mr. Shaw that these houses may be so arranged as to serve for horticultural exhibition purposes when the winter stove plants are not there, and a new building, 150 by 30 feet, just put up in the Botanic Garden, has been arranged with this view. An accurate bust of Linnæus has been made, to surmount this building, which was to be opened about the time we send this to press, with public ceremonies, including an eulogium on the great naturalist, pronounced by Dr. Engelmann.

FUNERAL WREATHS IN BELGIUM.—Madame Van Houtte, widow of the celebrated Louis Van Houtte, recently died at Ghent, in her 71st year. Describing her funeral, a correspondent of the *Journal of Horticulture* says:

"The funeral took place on the following Saturday, and as it was so different in its ceremonial from English interments it may be briefly described. We must premise that Belgium is a Catholic country. The entrance hall of the residence was transformed into a chapel, adorned with rich hangings, and the coffin was surrounded with tall tapers, and floral crowns were arranged at the foot. These so-called crowns are offerings of the family and friends, and are really huge wreaths, mostly oval in form, and

some three to four feet high. There were a great number of them, and some were extremely beautiful. Nearly every crown had what may be termed a framework of leaves of Cycas revoluta; the base of two leaves are secured together, and the tops being also brought together, form a natural and most elegant oval. When the leaves were not long enough for this, they simply formed a cross in the centre of the crown; but it is quite evident that they are considered indispensable in ceremonies of this kind, and the result is that, in Germany especially, the demand for large plants of this Cycas is always great, as the leaves can be readily sold by those who possess them at remunerative prices. Attached to each crown is what is termed 'the ribbon.' This is a ribbon of silk, about three inches wide and perhaps four feet long, each ribbon containing some motto in ornamental letters—an expression of regret or sentiment of esteem of the contributor in memory of the deceased. These ribbons are preserved by the family and cherished."

PREPARING AND FORCING THE LILAC.—The system of culture adopted by the market growers around Paris in the production of white lilac, is not at all difficult to understand or carry out. There are a few points of importance, and when these are understood, the work will be found comparatively easy, so at least the most successful cultivators assure us. It is a matter of course, needful to begin with nicely rooted plants that are well furnished with flower buds, and it is equally important that the right sort should be selected. A high temperature must of necessity be provided, and the plants require to be kept in a dark or shaded place during the development of the flowers. Lilacs that naturally produce white flowers are not forced at all, and instead those bearing lilac flowers, the change in the color being effected by the treatment to which the plants are subjected. The best, and the one generally preferred by the Parisian growers, is Charles X. The plants are grown from the first in pots, or at least, after the second year of the suckers being detached from the parent stool, as a shorter growth and a greater abundance of flower-buds are obtained, and those who have had experience in the forcing of hardy shrubs of any kind will not need to be told that examples well established in pots can be forced with much greater success than those lifted from the borders. After they are potted up due care must be taken to protect them from very severe frosts, by wintering them in cold houses or pits, and from heat and drought during the summer season by plunging the pots in a bed of some loose material. They require to be supplied very liberally with water to promote a strong growth, but in the season in which it is intended to force them watering should be suspended early in August, as by that time the flower buds will be well set. They must then be placed in a shady place, and as soon as the soil has become quite dry and the wood shows signs of shrivelling they are ready for forcing. When removed to the stove or forcing pit place in a position from which the light can, wholly or in part be excluded. Maintain a temperature ranging between 70 deg. and 80 deg. and supply liberally with water of the same temperature as the house with which they are occupied. By starting a portion of the stock in August a supply of flowers may be had in October, and by starting other batches at intervals a succession of bloom may be maintained throughout the winter.—*Gardener's Weekly Magazine.*

FERNS.—Where the majority of such Ferns as require artificial warmth have been grown, as from time to time recommended, with more air and light and less atmospheric moisture and heat than are often applied to them, the advantage will now be seen in more compact growth, more persistent in its character, and though the individual fronds may be somewhat smaller, they will have greater ability to retain a fresh sightly appearance than when otherwise treated. If any of the black species of living thrips exist they may now be destroyed by means of fumigation, which, however, should be done with caution, not submitting the plants to tobacco fumes over strong, as some of the tree species, such as Dicksonia antarctica, are easily injured thereby.—*Garden.*

NEW AND RARE PLANTS.

CROTONS.—Tropical America and the West India Islands have contributed no more beautiful class of plants to European greenhouses than that which embraces the various forms of Croton, and much enterprise has been exhibited during late years by European nurserymen in introducing new species, and raising new forms by the florist's art. In America, we value them for indoor decoration as our European friends do; but in addition we can have them for outdoor ornamentation, for they thrive admirably in the open air in our climate. In Philadelphia during the past season, we have often stopped to admire a magnificent specimen grown in a tub, standing in the small city garden of one of

CROTON GIGANTEUS (Princess of Wales).

a wealthy residents. It is probably six feet gh, and about five feet wide. We fancy a owner would not part with the beauty for ove or money," certainly we should not. We ve to see attention turned to the introduction, nd herewith give an illustration a rare one, the Princess of Wales."

This is one of the long-leaved drooping forms of Croton, and is perfectly distinct in character. It comes from the New Hebrides. The leaves are from 1½ to 2 feet in length, sometimes plain and sometimes strongly undulated. The ground color is green, and the variegation creamy-yellow, very variable in character. In some there is a

creamy-yellow mid-rib, with a band on each side; in others the mid-rib is bright green. The markings are of the maculate style, with here and there large blotches of clear creamy yellow, and in other parts clouded markings of smaller confluent blotches and spots. Occasionally these conditions are reversed, and there are longish patches on which the ground color is creamy, relieved by a few clouded green markings. The spreading arching habit, and the maculate style of variegation, are the characteristic features of this useful decorative variety. This was one of the twelve New Plants with which Mr. William Bull gained the first prize at the International Horticultural Exhibition held at Dundee, in 1876.

MACROZAMIA MOOREI.—In the *Pharmaceutical Journal* of Victoria, Dr. Mueller describes a new species under this name. Dr. M. does not regard Macrozamia as essentially different from Encephatartos. The pungent summits of the flower and fruit scales, besides geographical considerations are all that seem to characterize Macrozamia. In reference to this species he says:

"It remains to be added that the interest attached to this species rests not merely on its stateliness for scenic purposes in horticulture, its stem (like the trunk of its congeners) containing a peculiar starch, though garden traffic ought to hold this Zamia too valuable to be sacrificed for technical purposes; but the acrid principle which pervades these plants, and especially the alluring fruits, is so intense that fatal poison cases have actually occurred in these colonies from consuming Zamia fruits without maceration and baking, yet the peculiar principle of acridity has never been chemically ascertained, and thus awaits, perhaps for important therapeutic purposes, careful elucidation."

FRUIT AND VEGETABLE GARDENING.

SEASONABLE HINTS

The immense number of new varieties of fruit which continually appear, makes it very difficult to decide on what to plant, and those not familiar with pomological history, especially, are puzzled when they come to make a selection. Among all the new kinds offered there are always some of superiority, but the great proportion, good enough perhaps in themselves, are really valueless in comparison with standard kinds already well known. Among pears, for instance we have the Bartlett, Seckel, D'Anjou and scores of others which are nearly a hundred years old; they are as good to-day as they were nearly a hundred years ago, and no new competitor has been able to drive them from the field. It is the same with all other fruits if one would but believe it. The intelligent nurseryman knows this, and honestly tries to satisfy the public that it is so. But the "new" kind has been advertised and brought prominently forward, and the public crowd on him their demands for the "Lucifer," the "Conqueror," the "Summum Bonum," or the "Great French Bonne," or "The Belle," and, in spite of his own feeling that the thing is trash, he has to keep it, and see with sadness the kinds he knows are good neglected and unsold. But this is not all. No sooner has he a stock of what he believes salable at least, the very men who assert so pyrotechnically this year, that there never was and never will be anything like the "Summum Bonum," tell you as coolly "as a cucumber" next year that it has "not been found reliable," and you must now get their magnificent "Excelsior." And still the public run on, till in disgust the intelligent and honorable nurseryman gives up the race, and is rather disposed to be regarded as behind the times in not keeping everything on hand, than to run a scrub race for the profits on the doubtfully proper trade. But what is the remedy? The great proportion of new fruits are brought out by persons who know very little about what is already known. If a variety happens to be better than the few items they have a chance to compare with, they believe all the world should shower on them some profits for "their great skill in originating the wonderful thing." It is not fraud, but honest ignorance that causes the trouble. The testimonials therefore should be carefully scrutinized. The village doctor, or the pastor of the church may testify to the origin-

tor's honor and standing in the community. The banker may say his credit is good, and even the "celebrated fruit culturist, Gosling of Goosetown," may have declared that the originator is the greatest benefactor to our country since Christopher Columbus, or George Washington, at least, yet it is best to see that the testimonials to the new fruit's value is from some one eminent in fruit culture, and who must feel that in the recommendation he gives he has a character to lose. When the names of men like Wilder, Barry, Thomas, Warder, Berckmans, and others who crowd on us as we write, are attached to a fruit certificate, that is something, but not all. Just what they say should be carefully scrutinized. They will not say more than they know, but they speak favorably and positively of the little they know, and the introducer often introduces this in a manner calculated to impress the reader much more strongly than the writer intended. We know of many instances where an honest opinion has been given, which in print has made the writer emphatically declare he would never give another one. It will always be safe to suppose that the writer of a certificate never means anything more than just what he says. It seems we cannot do better in this one of our seasonable hints than to devote the whole chapter to this important topic. A few new varieties should always be selected. There are few branches of pomology which give more pleasure than the testing of new fruits which prove really meritorious. Use good judgment in the selection and try some, but plant chiefly of well-known and well-tried kinds. If you are in a wholly new district, the proceedings of the American Pomological Society, or of some near local society will help you to choose. If not try some near neighbor, and find what has done well with him. If this is not practicable, take the advice of some intelligent nurseryman who is well known in the business. To be sure there is a chance that he will be inclined to recommend only what he has to sell, but then it must be remembered that, knowing that it takes years to get up a stock to sell, and that the public will only want the best, there is really little inducement for him to grow any thing but the best. One may not always get just what he wants in this way, but he will certainly do better than he who races off after every new thing.

"Try all things and accept that which is good," is not exactly the advice for the fruit grower. Try a few of the best recommended.

COMMUNICATIONS.

WEEVIL-EATEN OR "BUGGY" PEAS.

BY PROF. W. J. BEAL, LANSING, MICH.

Last year, 1878, a trusty student at my suggestion, tested some peas with the following results. They are early peas, somewhat mixed, of moderate size and smooth. They were raised the year before. He soaked in water for one day 50 peas which were "buggy" and 50 which were sound, taken from the same lot. They were kept damp for five days when one of the "buggy" peas sprouted and nearly all of the sound ones. Again, in a damp place in the greenhouse, he placed 25 sound and 25 weevil-eaten peas. After six days all the sound ones grew, and only four of the damaged seeds. On June 5th, in good warm soil, 12 sound peas and 25 "buggy" were planted. Of this lot, all the sound ones grew, and only three of the "buggy" ones. The weevil-eaten seeds produced feeble plants.

This year, 1879, from the same lot of peas 500 weevil-eaten peas were counted out and tested in ten lots of 50 each, in the greenhouse. By the side of these, 500 apparently sound peas were tried. All the latter germinated except four.

The following table gives the number which germinated in each lot of 50 of weevil-eaten peas:

1st	lot of	50.....	12 grew
2d	"	.....	10 "
3d	"	.....	8 "
4th	"	.....	12 "
5th	"	.....	17 "
6th	"	.....	11 "
7th	"	.....	12 "
8th	"	.....	18 "
9th	"	.....	17 "
10th	"	.....	13 "
Total grew.....			130

This is 26 per cent. Some insist on it that a test in the open air is the only sure and fair one. It may be so, sometimes, but not always, unless very great pains are taken. For example, the moles are often troublesome in our gardens, passing along the rows and taking many of the peas and sometimes nearly all. Perhaps wrinkled or very large peas of some varieties would be less injured by the weevil than those above tested.

EDITORIAL NOTES.

BAUMFORTH'S SEEDLING RASPBERRY.—At one time some of our best raspberries either were foreign varieties, as Hornet, Soucheltii, North umberland Fill Basket, or were seedlings of foreign kinds; as for instance, Brinkle's Orange, Herstine, and Saunders. But the run for "perfectly hardy" kinds has left superior quality out of consideration, and indeed few new kinds have been introduced in the old world. Now we have Baumforth's Seedling, which is said to be superior to Northumberland Fill Basket.

THE HAMPTON COURT GRAPE VINE.—Of this famous grape vine, a correspondent of a recent number of the *Garden* says: "One sees, hardly with regret, that a large branch of this vine is dying. The old vine has played its part, and may well be permitted to die in ripe old age. Its bunches now are small and produced in too great abundance for the fruit to ripen well." It may be remarked here that this vine is of the Black Hamburg variety, and was planted in its house about 110 years ago—one plant having been so trained as to occupy the whole house, 70 feet long by 14 feet wide. The weight of fruit from this single vine in its lifetime, so far, has been about 22,000 pounds.

A BALCONY ORCHARD.—We often hear of window and house gardening as concerns flowers; but seldom in relation to fruits. The *Gardener's Chronicle* says of a gentleman in Paris:

"There, in his aerial garden, Mr. Lockroy successfully grows pears, currants, gooseberries, and roses; and, on the testimony of M. Carriere, the plants are as vigorous and healthy as could be wished, and produce fruit and flowers of quality and beauty equal to terrestrial subjects. Of course they require a great deal of care, and much labor; but the labor is a labor of love, and Mr. Lockroy appears to understand what treatment suits his pets, and permits nobody else to touch them. He cultivates no fewer than eighteen varieties of pear, and successfully fruits them all, including such varieties as Winter Doyenne and others which commonly get spoiled, but not in the aerial garden of the Rue Washington."

HOT HOUSE GRAPES AS A PASTIME FOR AMATEURS.—The comparative ease with which good fruit of all kinds can be had at all seasons in America, makes less necessity for amateur culture than there is in Great Britain; but the house culture of grapes seems well worthy of more general adoption, for good as any fruit may be few things will compare with a well grown hothouse grape. On this account we are tempted to reproduce the following good sketch from the London *Journal of Horticulture:*

"As some encouragement to amateurs who would like to commence grape-growing, and are afraid to make a start owing to doubts and difficulties which are conjured up in their minds, I have thought it might be useful if I relate the experience of an old retired gentleman in this district who, at my suggestion some years ago, was induced to make a small beginning. This has proved to him a great boon in many ways, but chiefly, as he firmly believes, in prolonging his life by many years, in consequence of the agreeable occupation and moderate exercise which the vines have occasioned him. He attends to them entirely himself, including stoking, thinning the grapes, and supplying water. Many people are under the impression that because they live in a town the luxury of vine-growing must be denied to them; but this is quite a delusion, as I hope I shall be able to prove. There is no reason whatever why every householder who may have a fair-sized back or front garden to his house cannot have a vinery or two and plenty of good grapes also, if he plants the right sort of vines and sees that the preliminary work of border draining and making is properly carried out.

"This gentleman's residence is in a town of about eight thousand inhabitants; at the back of his house he has a small yard walled in. Against a portion of this wall, with a south-west aspect, he built his first very small vinery—a rough-and-ready structure built by himself and a carpenter, at a trifling cost, obtaining a small second-hand boiler with two rows of piping, a flow and return. A border three yards wide and one yard deep was made with a compost of turf cut into not too small pieces, and into which had been previously mixed little half-inch bones and a sprinkling of old mortar rubbish, and in connection with which a drain had been laid to take away all stagnant water. His vines grew luxuriantly the first year, and soon reached the top of his house, and by a little firing in the autumn, to harden the wood and ripen the buds of the vines, he had the satisfaction of seeing in about twelve months after planting a good show of bunches on all the vines, as the result of his own attention and care, with an occasional hint from me. The vines were not allowed to carry more than three bunches each the first year, but were cut back as is usual, leaving them about two feet long. The second year they also grew well and ripened the grapes they carried finely. In the autumn, as before, they were assisted with a brisk fire heat for about a month or six weeks (from the end of August to the beginning of October), to help to harden and ripen the wood of the vines. This is of much more importance than many are aware. The want of attending to it is more often the cause of failure (especially in the case of young vines,) than anything

else I know. The vines were again cut back in the winter, this time to four or five feet, and carried the next year from five to seven bunches of grapes each. The year after (third year of bearing, four years after planting) his house was full of good plump grapes which would have done credit to any professional man, and of which, I assure you, the gentleman was very proud.

"Encouraged by his first success he built another vinery against a higher wall and rather longer in the same yard, which he planted with Black Alicante, and which has succeeded even better than the first, and which returns to him annually for surplus grapes sold the handsome sum of from £25 to £30. The old gentleman declares that he has no property (and he has a variety including house property) which returns him anything like the interest on the amount expended that this vinery does.

"I hope what I have narrated above will encourage others to try and do likewise. There are few districts to be found in which there are not gardeners who would be willing to assist gentlemen in this matter with suggestions and directions how to proceed. To those who have not this channel of information, with your permission I shall be glad to give more detailed directions in a future paper."

EARLY VICTOR GRAPE.—This was raised by John Burr of Leavenworth, Kansas. It is similar to Ives, but is said to be earlier and better than that well known vine.

WORM EATEN PEAS.—Every one must understand that when a weevil eats the inside of a pea, it depends on the part eaten whether the pea grows or not. If only the cotyledons are eaten there is no reason why the seed should not grow, but if the little germ be devoured the growth is impossible. If we examine peas infested with weevils, we find that on an average four out of five of them have the germs eaten out, and thus we may safely conclude that about one pea in five may grow. Notwithstanding this simple way of settling the matter it is surprising that for a quarter of a century or more we have been pestered with articles in the agricultural papers on each side, one class affirming that a worm eaten pea will grow, the other that it will not. It would really seem that it needed not to set a hen to find out whether rotten eggs will hatch, but when it is asserted that they will it is as well to let them fix the bird and try. In this sense the remarks of Prof. Beal in another column are of great value. Surely after this we shall hear no more of the growth of buggy peas. They are from a lecture given last winter.

EARLY BLACK-CAP RASPBERRIES.—Mr. Downing writes to the *Rural New Yorker*, that the Skowegan and Centennial are good kinds, and earlier than others now grown.

JERSEY QUEEN STRAWBERRY.—Mr. Peter B. Mead has a good word for this new variety in the *Rural New Yorker*.

THE SAND PEAR.—Prof. Budd in *Rural New Yorker* says the name is from the preference the pear has for growing in sand in the East. "The ability to endure tropical heat" is the way he puts it. A very common form cultivated for years about Philadelphia, has the surface covered with very fine "Pear grit", and without knowing how the name originated, the inference always has been that this gave the name to it. If Prof. Budd has positive evidence as to the origin of the name, of course a mere guess from appearances must give way.

RASPBERRY CULTURE.—It must not be forgotten that the Raspberry is naturally a Northern or mountain plant, and to succeed with it in warmer latitudes a cool soil is of first importance. As bearing on this subject we give the following interesting piece from the London *Journal of Horticulture*:—

"Having had occasion to pay more than ordinary attention to the culture of this fruit, a few words concerning a failure and its remedy may prove useful to others. In planting a few rows about four years ago no particular care or preparation of stations was thought necessary, although the soil was obviously the reverse of rich. Unbroken success had very likely given me an impression that the Raspberry would thrive anywhere and in almost any kind of soil, and this feeling was strengthened by the sight of a bed of 'wild' Rasps growing luxuriantly in an Alder swamp within 100 yards of the garden. The soil was therefore simply trenched, manured heavily as for vegetables, and the Raspberries planted. A tolerably vigorous growth yielding fruit in due course was the result. But I was not satisfied; the fruit was neither so large nor plentiful as was required, and I resolved to start afresh, reserving the old plants for present exigencies.

"In making the new bed, particular attention was given to ensure a robust growth, which in the Raspberry implies an abundance of fruit, and to arrange the whole so as to make it an easy matter to protect the fruit from the ravages of birds. This was managed successfully by making the rows side by side five feet apart, and with the plants one foot apart in the rows. Trenches a yard wide, two feet deep, and filled with the soil—leaves and dung of some old hotbeds well chopped and mixed, being prepared for each row. Large fruit and plenty of it was the object in view, and Prince of Wales was chosen as the

best kind for culinary purposes, its fruit being very fine; but as it is not so sweet as some it would probably not be generally liked for a dessert fruit.

"It was reasonable to suppose that this careful preparation of the bed would produce proportionate results, but I must confess I certainly did not expect to see anything like the extraordinary vigor of the first year's growth. Not only did the roots spread over the trenches, but they quickly met and became interlaced in the alleys, the entire surface soon bristling with suckers, which could only be kept under by repeated hoeings. The canes left to grow in the rows were wonderfully robust; and the old canes, which had been shortened to about a foot at the time of planting, put forth some shoots bearing such good fruits as to cause one to regret having shortened them so much. I do not, however, think it good practice to leave the canes of a new bed unpruned as is sometimes done, but would always reduce them to one or two feet. In autumn when the leaf had fallen, two wires were strained along each row, one two feet from the ground, and the other 3 feet 6 inches; the canes were then pruned a uniform height of 4 feet, tied upright to the wires, and the work was complete.

"The bed has now been in full bearing for two seasons, the fruit being both abundant and fine. A heavy annual top-dressing of manure is given to the alleys. The soil is never disturbed, but remains intact just as it was left after the planting. As the fruit ripens the bed receives one or two thorough soakings of water or some liquid manure, which proves very beneficial to the crop, making the latest pickings of fruit quite equal to the first in size and color."

SOUTHERN TEA.—The tea raised in the South under the patronage of General Le Duc has been pronounced of high quality by London experts. It is a great gain to know that we can raise tea that will be readily marketable, and General Le Duc deserves credit for having demonstrated this much. If it can now be raised cheap enough to compete with the Indian or Chinese tea there is no other objection to commercial culture. We know that it is said we cannot compete with Chinese cheap labor, but we are not disposed yet to let "cannot" stand in the way. It is worth more trial than has yet been given it.

TRAINING VINES IN GERMANY.—The various methods of training field vines in Europe have often been given in our pages, but the manner is still new to many of our readers. We give the following account of one plan from a recent note of a correspondent of the *London Garden:*

"I was very much interested this year in the different modes in which they grow vines in the wine country which fringes on the Rhine for so long a distance. I observed them chiefly at Neuhausen on June 10, and found two modes of culture pursued. In the first instance the vines were trained up a six-foot pole, and stopped at that height. Six or seven stems were trained up the pole from the same root, encouraging side growths for the fruiting wood. In the other method, one leading stem was grown up and bent down, and tied to the foot-stalk, so as to form a hoop, round which the growth was made and the fruit borne."

SLITTING THE OLD BARK OF FRUIT TREES.—*Green's Fruit Grower* says:

"Looking over a back number of the GARDENER'S MONTHLY we find this on the editorial page: 'Young growing trees are very much benefited by having their bark slit by running the knife up and down freely; they must not be cut crosswise or horizontally.' If any person thinks he can very much benefit our young growing trees by such surgical operations let him try it. If our shot-gun were handy he might get a full charge without warning. We have great respect for Mr. Thomas Meehan and his opinions, and have ever considered him a shining light in pomology. We have listened to his interesting public talks; have been charmed by his wit, his anecdotes, his eloquence and ready repartee, but when he advises ripping into growing trees, we mildly protest. A sick or lame animal may be benefited by tearing open the skin and causing outward irritation; but on young, growing animals, presumably healthy, the remedy would seldom be applied. We cannot help feeling that trees take offence at being mutilated as well as animals."

No wonder our good friend is alarmed at the "spook" he has created. We have no fancy ourselves for "ripping into growing trees," but we do believe in slitting dead bark. Some day when some leading horticultural body needs a "public talk" we may take occasion to show that dead bark is not a part of the growing body; that it is an evil which the growing parts are trying to get rid of, and that it is the part of wisdom in the good cultivator to aid the tree in this good endeavor as far as may be in his power. The editor has no time to prepare written essays for public bodies, but if a "public talk" on this subject is likely to be of interest to the next nurserymen's meeting at Rochester, and he should be able to be there, and he should be invited to speak before that body, he would endeavor to make this matter plain, and would invite those who may have any objections to make to bring them forward then and there, and show cause why judgment should not be entered against them, or to ever after hold their peace.

THE SOY BEAN.—This—the Soja hispida—has been under culture in American gardens ever since Commodore Perry's memorable expedition to Japan. But no one seems to have known the use of it, and so it soon disappears, as, in the usual way of cooking it, any ordinary bean is better. Among Mr. Dreer's Japan collection at the State Fair we noted that it again appeared, and we are moved to give the following from the *Gardener's Chronicle*, as showing how to use it:

"The greatest use to which the plant is put in China and Japan is in the preparation of soy and of various kinds of food from the ripe seeds. The manufacture of shoyu, or soy, is thus described in a descriptive catalogue of agricultural products of Japan, exhibited at the late Sydney International Exhibition. Equal parts of beans and wheat are used; a small part of the wheat is mixed with koji, which is an alcoholic preparation from rice, and allowed to ferment; the remainder is roasted, and the beans are also roasted. The roasted beans and wheat are then mixed together with the fermenting wheat, placed in shallow wooden boxes, and kept for some days at a fixed temperature in a warm chamber with thick walls, until the whole mass is covered with fungus. It is very important that the temperature of this chamber should be kept at the proper point. By these processes part of the starch of the wheat is converted into dextrine and sugar, and lactic acid and acetic acid are formed. It is then mixed with salt lye. The mashings are removed to large vats, and kept there for at least twenty months, but more often for three or five years, the better qualities being those that are kept for the longer periods. The best soy is produced by mixing that kept for five years with that kept for three years. After it has been kept a sufficiently long time, it is strained through thick cotton bags, and the residue submitted to pressure. Before filtering, honey is sometimes added. The residue, after pressing, is again mixed with salt and water, and again pressed, the yield being soy of an inferior kind. Sometimes water is added to this second residue, and it is again pressed. The residue first obtained is occasionally used as food, and the last residue as manure. (See *Gardeners' Chronicle*, vol. xiii., new series, pp. 178, 209, 242.) Shoyu, or soy, is a very important condiment; it is mixed with a great many kinds of food, and is produced and consumed in very large quantities. Regarding the use of the soy bean as a vegetable in Japan, the writer of the foregoing remarks on soy says: 'It is the vegetable which approaches nearest in chemical composition to animal food (meat), containing, as it does, one-fifth of its weight of fat, and often two-fifths of nitrogenous matter. It is an extremely valuable adjunct to the food of a people who subsist so largely on a purely vegetable diet, of which the bulk is rice, so rich in heat producers—starch, and poor in flesh formers—albuminoids.'"

SCRAPS AND QUERIES.

POT CULTURE OF STRAWBERRIES AND GRAPES.—"P. F.," Jersey City, N. J., says:—"Will some of the readers please give an amateur a few hints on growing and fruiting grape vines in pots, also on forcing strawberries in pots?"

PRUNING.—A Long Island correspondent says:—"The observations made in Seasonable Hints in GARDENER'S MONTHLY, correspond with my practice and experience for forty years. The true theory and art of pruning is too little understood and is a life-long study, and many an unshapely tree can by proper pruning be made an object of beauty. On a recent visit to the highly ornamental grounds of C. A. Dana, it was a feature of particular enjoyment to note the symmetry of his extensive and beautiful collection of trees. And friend Dana was as much at home with his pruning knife among them as with his pen in pursuing his great literary labors. There was so much to see and admire; such taste and good judgment displayed that I wished my friends, Meehan and Josiah Hoopes, were also there to enjoy it. It is on an island comprising about thirty-five acres with a coast line bounded by the Long Island Sound on three sides, affording a water prospect unequaled near New York. His mushroom cellar was a curiosity; he had had good success until last spring. The water permeated through the bottom and made it too damp, but by digging a trench down to the foundation of the walls the water was led away and the young plants were growing nicely."

PLUM STOCKS FOR PEACHES.—"A.," Union Springs, N. J., writes: "Will you please inform me of your experience with peach on plum, either on Myrobolan or native stocks and how do they compare, thus worked, with those on their own roots as regards productiveness, freedom from yellows or other diseases, exemption from attacks of the borer, etc., also as to longevity of trees. What stock do they do best on? Will you kindly do so through the GARDENER'S MONTHLY?"

[The questions put by our correspondent we cannot answer to entire satisfaction, and so present them to the GARDENER'S MONTHLY for that investigation which their great importance demands. We will only say that in Europe the peach is almost always grafted on the plum,—perhaps one might say always,—the varieties

used being the Muscle, which is propagated from layers as we do quinces,—and the Mirabelle, which is raised from seeds. The Myrobolan plum is our cherry or miser plum, and is believed to be a native kind, though grown in France to some extent for stocks; but we have never known them to be used in Europe for stocks for the peach. The only experiment in this country to any great degree that we know of, was tried some fifteen years ago at the Evans' nurseries at York, Pa. Mr. Evans pointed out a large block. They grew finely the first year from the bud, but the next had a yellowish tint, and Mr. Evans stated were short-lived, and that he should not repeat the experiment. So far as we know the peaches in Europe are wholly exempt from the terrible disease we know as yellows, but whether this is because the trees are grafted on plum stocks, or that other conditions are unfavorable to the propagation of the ferment fungus we cannot say. What have our correspondents to say about it?—Ed. G. M.]

FORESTRY.

EDITORIAL NOTES.

TREE PLANTING.—Picking out a sentence, or perhaps half a sentence, as in the following, and then making a chapter on it, is much like the practice of Scriptural polemics. The most contradictory notions can be established in that way. The following illustration from the *Country Gentleman* would not be worth note but for the initials of one of the most intelligent of Pennsylvania agriculturists being appended to it.

"Mr. Meehan says, in his Forestry Report to the Pennsylvania Board of Agriculture, that it is a mere waste of public money to give premiums for the planting of trees anywhere and everywhere. His reason possibly is that so few of the trees so planted scatteringly can ever become fit for the saw and plane. It is not along fences or roadsides that a tree can be expected to grow well every season for a hundred years or more without ever being rubbed, or bored, or broken, or in some way impeded in clean, erect growth, during all that time. But in a crowded plantation, where each is a nurse to the other, and where the fittest and best survive, they are secure and luxuriant. Of all the beauty of high culture for which England is famous, not the least is the lushy umbrageousness and thrift of the artificial plantations seen on some of the hills, which, outside of the enclosures, are as bare as any prairie. W. G. W."

What Mr. Meehan really did say we take from the report as published in the volume for 1880: "Thus we see that blind attempts to encourage timber culture in some States have failed. General laws giving premiums for planting trees anywhere and anyhow, so that the trees are planted, is a mere waste of public money."

It seems to us that "blind" attempts to encourage timber planting "anywhere or anyhow, so long as trees are planted," is not at all saying "it is a mere waste of public money to give premiums for the planting of trees anywhere and everywhere." Mr. Meehan is and always has been in favor of State or National encouragement to forestry culture, but he condemns the blind and senseless legislation that, under the name of encouragement, has been simply a waste of public money.

Intelligent legislation is of another sort than that which is blind and blundering.

One of the laws Mr. M. had specially in mind was one of Pennsylvania, that if a person plant a few trees along his front on the roadside, he shall be relieved from the payment of road taxes. What the planting of a few trees along the roadside has to do with the great national question of forestry it is hard to see; and even if the planting of a few hundred trees in this way should have any influence on the millions of feet of lumber required in the future, it is difficult to see why we should be compelled to stick in the mud because no taxes were raised to repair the roads. It is blind legislation which gives bad roads for road-trees, however good.

THE RECENT FOREST FIRES.—Perhaps, one of these days, the course the GARDENER'S MONTHLY

has taken on the forestry question will be appreciated. It has steadily opposed the whimsical speculations of persons utterly unacquainted with the natural laws bearing on forestry, and whose closet studies given to the public are worth little more than dreams. This class has had its say for the past one hundred years or more; still our lumber supply is disappearing, and the awful forest fires annually occur. What is the use of theories of trees and climate if no more planting follow? The question must be argued as one of dollars and cents if the slightest good at all from the agitation is to come.

It may do good in view of the recent calamities to go over again what we have said before:

The idea that it takes centuries to raise a forest is derived from European forest literature. An American forest under proper management need not take fifty years, and would be productive in half the time.

A natural forest of American timber is at its best in less than one hundred years. It is no great loss to cut away an old forest, as after one hundred years the trees are on the downward track.

The planting of new forests is of far more consequence than the preservation of old ones.

It is good economy to cut away forests in inaccessible places, clear the land, build up towns, and encourage human industry, and new plantings should be encouraged in locations where mankind can get at the lumber and make good use of it.

The greatest foe to forest planting in America is forest fires. Forest fires are virulent only where there is a mass of undergrowth, collecting enormous masses of dry leaves and dead branches, which feed the flame when a fire is once started. The owners of all forests with underbrush beneath the forest trees should be rendered liable for all damages from forest fires to other people.

Most forest fires come from sparks from railroad locomotives. Even if it be not thought expedient to insist on the utter absence of underbrush from large forests, the railroad companies should be compelled to clear all sides of their tracks for at least 150 feet in each direction of trees, weeds, grass or other material that might start a forest fire.

Green trees or green vegetation will not take fire easily, and there is no more reason why acres of dry brush should be allowed to lie about loose than that gunpowder should be scattered along the highway.

The States or the United States should each or all have bureaus of forestry, the duty of which should be to collect statistics of forest trees and forest culture adapted to their respective regions, and circulate the same freely among the citizens that they may see clearly what profit there is in forest culture, if at all, and if there cannot be shown enough profit within a reasonable time to induce the investment of capital, some "protective laws" of sufficient encouragement should be enacted.

These are about the main points which we have presented from time to time. Most of the timber laws so far enacted have been childish, even when not a waste of public money and an outrage on taxpayers. The setting out of half a dozen trees along the roadside is of no earthly consequence, nor even the planting of ten or twelve acres here and there. It is the earnest efforts of a hundred or more acres that should have the judicious protection of the law.

NATURAL HISTORY AND SCIENCE.

COMMUNICATIONS.

A FLORAL INSECT TRAP.

BY MARGID DIGRAM.

Just before receiving your July number, which, by the way, absence prevented my receipt of until the middle of the month, I encountered on the edge of the little-used trotting track at Ramsey's, a station on the New York and Erie road, a specimen of Asclepias obtusifolia, one of the two species of northern milkweeds which have the peculiarity of bearing but a single umbel of flowers at the termination of an undivided stem.

Asclepias obtusifolia is seldom found growing

in groups, the occasional plants seen by the writer during the past summer being almost invariably single specimens, and standing in widely separated positions or localities.

On two of the flowers of the umbel of the Ramsey plant, I noticed the ordinary honey-producing bee, apparently feeding. As, after jarring the plant, these insects did not seem disposed to quit their places, I examined them more closely, and found them to be quite dead with poison, as I then thought. Pulling up the plant, I carried it to New York city, and the umbel and two upper leaves as far beyond as Ocean Grove. During the transfer of 125 miles, the umbel was much blown about, and yet both the insects maintained to the journey's end the attachment that had originally proved fatal to them. Shortly after my arrival at Ocean Grove, the July number of the GARDENER'S MONTHLY was handed me, and I therein found on page 219, a complete revelation of what had seemed so mysterious.

EDITORIAL NOTES.

THE SHOE-BLACK PLANT.—Under this name a well-known ornament of our gardens in summer, the Chinese Rose-Hibiscus, or Hibiscus rosa-sinensis, is well known in Java. A London paper, *Colonies and India*, says:

"The 'shoe-black plant' is the name popularly given to a species of hibiscus growing in New South Wales, and remarkable for the showy appearance of its scarlet flowers. Growing freely in almost any kind of soil, the plant is frequently cultivated for the flowers, which, when dry, are used as a substitute for blacking. The flowers contain a large proportion of mucilaginous juice, which, when evenly applied, gives a glossy, varnish-like appearance, which perfectly replaces ordinary blacking, with the advantage that it is perfectly cleanly in use and can be applied in a few moments. Four or five flowers, with the anthers and pollen removed, are required for each boot, and a polishing brush may be applied afterwards if desired. A few plants of the Hibiscus rosa-sinensis growing in the garden would remove one of the minor disadvantages of a day in the country during such uncertain summer weather as we usually experience in this country."

To this we might add that in Japan and other Western countries the ladies use the juice of the flowers to dye their hair, eyebrows and teeth, of a beautiful black color.

FLOWERING OF THE CENTURY PLANT.—Though it is not true that this plant will not flower under a century, it flowers so rarely that the occurrence is always an event in the community. When in Cincinnati recently, the writer saw one on exhibition at the Highland House, a famous place of popular resort. A very interesting paper, suggested by the flowering of this plant, was read before the Cincinnati Society of Natural History by Joseph F. James, from which we make the following extract:

"The flowers are of a greenish yellow color, growing in large bunches as big as a half-bushe, measure. The perianth is six parted. The filaments at first are curved over, and the anthers swung nearly in the centre, are bent down and packed in the perianth. As the flower matures, the filaments straighten and elevate the anthers, while as soon as the pollen is shed the stigma, which until then was almost concealed in the perianth tube, rapidly elongates and is soon ready to be fertilized. Thus, this is one of those plants whose flowers cannot be fertilized by their own pollen, for when the stigma of a particular blossom is ripe the pollen of that flower is gone. In this way close interbreeding is prevented, and cross fertilization becomes necessary for the perfection of seed.

"The economical uses of the plant are many. Lindley says the root is diuretic and anti-syphilitic; as a cordage it is extremely tough, but the leaves have many more uses. When the expressed juice of the leaves is evaporated the residue is said to be useful as a soap. The whole leaves are used by the poorer classes of South America instead of writing paper, and also for thatching their houses. If the inner leaves of the plant are cut out just before the flower scape bursts forth, the sap flows abundantly. This has an agreeable sour taste, but soon ferments, is called 'pulque,' and has the odor of putrid meat. Europeans who have overcome their repugnance to the odor are said to prefer 'pulque' to any other beverage. From it is made the fiery brandy known as 'aguardiente,' which has been a considerable source of revenue to the Mexican government. From three cities it collected a net sum of £166,497, equal to about $832,485.

"The fibre of the leaves is made into cordage which is extremely strong. Humboldt describes a bridge with a span of 130 feet over the Chimbo, in Quito, of which the main ropes, four inches in diameter, were made of Agave fibre. Orton says: 'the flowers make excellent pickles; the flower stalk is used for building; the pith of the stem is used by barbers for sharpening razors; the fibres of the leaves are woven into sandals and socks, and the sharp spines are used for needles.'

"It has been supposed by some writers that the century plant was the one which was referred to by old Chinese historians in accounts given of a visit in the fifth century to the land of 'fusung,' supposed to be Mexico. Other writers have denied that the land of 'fusung' was

Mexico, and contended that it was Japan, because the poetical name of Japan was 'fusung.' Still, the account says that the country visited lay 'twenty thousand *li*' to the east of China, and, as a *li* is equal to one-third of a mile, it is necessary to suppose Japan and China to be separated by over 6,000 miles, a rather improbable supposition. There is nothing very improbable in supposing that the Chinese crossed over to America by way of the Aleutian Islands, and they may have penetrated as far south as Mexico. The subject is fully discussed in the fifth volume of Bancroft's 'Native Races of the Pacific Coast,' to which I would refer anyone who wishes to investigate the subject further."

AUTUMN FLORA ACROSS THE MISSISSIPPI.—One who has had the privilege of seeing the flora west of the Mississippi in the autumn season of the year, will not soon forget the scene. From Texas to Kansas and Nebraska, the wild, uncultivated lands are perfectly gorgeous with red and blue and gold. Malvaceous plants, like Callirhoe or the "poppy mallows" and the Liatris or "gay feather" often make up a good part of the rich red tints, while many kinds of aster-like plants, especially various kinds of Helianthus or sun-flower, supply the gold. Among the blues which take their places among these and the plumes of the numerous species of prairie grass are some species of sage, es-

SALVIA FARINACEA.

pecially Salvia lanceolata, S. angustifolia, S. azurea, S. farinacea, of which we give an illustration herewith. We are glad to give this illustration because botanists themselves seem to have been confused as to these species as seen growing in their natural condition. In Southeastern Kansas, for instance, one often recognized by collectors as S. Pitcheri (now considered as but a variety of S. azurea,) is very common. Others have believed this Kansan plant to be S. farinacea, and in cultivation we often meet this plant under one or another of these names. The plant from which the illustration has been made has been distributed by Haage & Schmidt, of Erfurt, under this name, and we believe it to be entirely correct, as, it is a pleasure to note, are most plants sent out by this enterprising firm. It will be noted by those who are familiar with the Kansan plant that the lip is not nearly as large. According to Dr. Gray, this species, the true S. farinacea, is confined to Texas. S. azurea grandiflora (Pitcheri,) and a smaller blue species, S. lanceolata, are the blue sages of the splendid fall flowers of Southern Kansas.

According to Haage & Schmidt, the Salvia farinacea is an annual, but in its wild Texas habitation it is a perennial. We have, however, found it to flower freely from seed the first year, so that it may be treated precisely as if it were an annual.

FLOWERING OF THE BERMUDA GRASS.—There is a common belief that the Cynodon Dactylon does not produce flower spikes in the South. The writer gathered some a few years ago near New Orleans. Last year he found a large quantity wild near the Smithsonian grounds at Washington, flowering freely, and now has before him good specimens from St. Louis from some plants introduced to cultivation there from Texas.

GALLS ON THE RED SPRUCE.—What is known as the Chermes gall, which makes the ends of the branches appear like small brown cones, are very abundant in the red spruce this year. This species seems a great favorite with this insect, and it is one of the reasons why it is not a favorite with ornamental planters.

SCRAPS AND QUERIES.

NIGHT OPENING FLOWERS.—"L. B. O.," Denver, Col., says: "I have a cactus of the cereus family, don't know the name, but the leaf is broad and flat, blossom white; it has had several blossoms during the summer, but they have all opened in the evening and closed before daylight. This week it has had three more, but instead of opening as usual in the evening they opened in the forenoon about eight o'clock and remained open until, from two to three o'clock in the afternoon. If any of your correspondents

or anyone else can give me any light on the subject it will be gladly received through the MONTHLY. I have been a reader of your MONTHLY for several years but have noticed nothing of this kind in it."

[This is not a Cereus proper, but probably an Epiphyllum, or an Phyllocactus, to which genera the leaf-like cactuses mostly belong. The fact of its variation in flowering is valuable. There is evidently no constitutional time of flowering in plants, so as to enable us to construct "floral clocks," but what the external influences are which govern the time, are not yet known.—Ed. G. M.]

THE SUN-DIAL PLANT.—The correspondent who first made enquiry about this, now sends us a flower which proves to be the common Okra. This and the Pimpernell, must settle it among themselves which shall have the right to the name.

THE WESTERN CATALPA.—A Western correspondent says: "Is it in your opinion a settled fact that there are two species of catalpa. Why I ask this is because last fall when gathering seed in Arkansas, I found trees growing side by side that had come from the same seed planted at the same time, etc., (of this I am certain,) some of which had all the appearance and form of the speciosa, while the other had the different bark, seed, etc., by which the Eastern species is recognized. I picked seed only from those bearing seed of the 'speciosa.' It puzzles me to know whether there are two species or not, after all?"

LITERATURE, TRAVELS AND PERSONAL NOTES.

COMMUNICATIONS.

HISTORY OF THE WEEPING WILLOW.

A tradition concerning the origin of the beautiful weeping willow trees of our country and England was recently published in one of our popular juvenile publications, and republished in the *Ledger*. It was a pleasant little story, but, referring as it did to a matter of scientific and historic interest, we thought it worth while to consult scientific and historic authority on the subject. The result was a very interesting letter from Mr. Thomas Meehan, arboriculturist, and editor of the GARDENER'S MONTHLY, from which we extract the following passages:

Only for the fact that popular writers seldom take the trouble to go to a horticultural library to ascertain whether their notions are true or not, one might be surprised at the statement made in the slip you send me. Fancies like these are so often passed off for truths that those who know better seldom take pen to correct them, in despair of reforming these loose habits of handling truth. I never could see why general literature ought not to demand as rigid accuracy in the statement of a fact as we expect from a person in private life, but it is unfortunately not so. Libraries—first-class libraries—are now within the reach of intelligent persons, and there is no excuse for the indifference about ascertaining the facts we so often see. It is very pleasant to have the editor of the *Ledger* on the side of carefulness, and I answer the questions put to me with great pleasure.

First, even the history of the so-called anecdote of Pope is not correctly rendered. Green gives it thus: Pope's willow "came from Spain, inclosing a present to Lady Suffolk. Mr. Pope was in her ladyship's company when the covering was taken off, and observed 'These pieces of stick appear as if they had some vegetation,' and added, 'Perhaps they may produce something we have not in England.'" This "covering" is generally understood to be what in England is known as a "hamper basket," made of willows. This would be more likely than to find a small twig of a weeping willow alive in a box of figs, the last place in the world to find a live twig or a twig of any kind, unless, perchance, a small, dry piece of the poet's bay, the leaves of which are often used by the Italians to garnish the better class of dried figs. Even the original story is certainly apocryphal, the belief in which might be excusable a hundred years ago, as the means of gaining personal knowl-

edge was not as great as now. Everyone familiar with the weeping willow knows that the wood is very brittle. It is one of the curious but yet frequent contradictions of nature that the most opposite properties should often be found in closely related families. Willows are in many species used for basket work, but it would puzzle even the celebrated Philadelphia basket makers to make anything of a job with the branches of a weeping willow.

But if Pope was anything of an expert in the knowledge of rare plants, which his reported exclamation would lead us to suppose, he must have been a careless fellow, for at this very time (1772), as reported, a large weeping willow tree was growing at Hampton Court, which, if I rightly remember a walk I once took from Pope's villa to this place, could not be more than three or four miles away. In Plukenet's "Phytographia," published in 1691, is a drawing, taken, as he says, from this tree at Hampton Court, and which must have been there some years before. It is more than likely that Pope's willow was a cutting from that tree, and that the story, as given, like so many others of this class, is an afterthought, which never occurred to any one till after the tree became famous. The successor in the ownership of Pope's villa was Earl Stanhope, who happened to have a strong turn for plants and flowers. He probably had the story from some old servant of the place, and believed in it without question. I have heard just this sort of wonderful thing from these old family retainers, and know just how much most of them are worth. Pope's willow did not become famous till Lord Stanhope's time. He distributed cuttings freely everywhere, and it is a matter of certain history that some were sent in 1769 to the Empress of Russia. In 1799 the tree was cut down.

Coming to the American part of the story, I doubt very much whether any one in those early days ever thought of wrapping cuttings in "oiled silk." It is solely a modern American idea, and even now—just now—after about ten or twelve years of American use, the English papers are recording as a remarkable fact that plants have been sent safely by mail "across the kingdom" by its use. But, grant this, it would take a week, perhaps, before the young British officer, in Boston, in 1775, got with this Twickenham twig to sea, six weeks to cross the ocean, a week, at least, to get to duty fairly, and we do not know how many weeks before he gave up the hope of settling on the confiscated lands of rebels, and concluded he had better give the carefully prepared twig to young Custis. It would, indeed, have to be carefully prepared to stand a trial like this. Any horticulturist could have saved Mr. Lossing from being misled by a story like this.

Supposing, however, that there was a tree at Abingdon, the statement that it was the parent of all the weeping willows in the United States is as unsupported as the rest. It is not easy to fix just when the weeping willow was introduced into the United States. Nurserymen then, as now, were continually importing, and no doubt as many claims could be put in for its first introduction as for the discovery of the late comet. Certain it is, that it was abundant throughout American gardens long before this young officer arrived. Works published before the Revolution speak of it as a matter of course. McMahon's "Gardening," describing how to beautify the grounds, says, "On the verges of large compartments of water, some Babylonian or weeping willows will have a very agreeable effect." Pursh, who in the beginning of the present century was gardener with Hamilton at the Woodlands, and spent some years at the expense of Dr. Barton in traveling through the country, published in London in 1814 the first complete flora of the United States, and he reports in this that he found it to be abundant everywhere in the Union, that the history of its introduction was then completely lost, and he was half inclined to believe it might be indigenous.

This brings us to the real history of the weeping willow. There is no doubt now about its being a native of China and Japan. Representations of it are frequent on all Chinese porcelain. The form under culture is the female one, and have all been propagated from one individual tree. It is somewhat different from the male form, which is Salix japonica. In Japan it is known as "Yanagi," as I learned from the Japanese Commissioners during the Centennial, and not "Angaki," as stated by Thunberg. How did it first get to Europe? Caspar Bauhin, who wrote a book about plants in 1671, refers to it as "Salix Arabica, with leaves like a chenopodium," and gives Rauwolf as the one who made him acquainted with it. Rauwolf was a celebrated Dutch traveler. The Dutch were for a long time the only Europeans allowed to trade with China. It is highly probable that the Dutch brought it to Europe, and, with the intimate re-

lations with Holland which sprung up with the advent of the Prince of Orange to England, the weeping willow made its way to the Royal Palace at Hampton Court. At any rate, this was the first willow known in Europe, and nothing is yet positively known as to how that plant came there.

The name Babylonian willow is a poetical fiction, and comes from a mistranslation of the Bible version. The willow is wholly a native of arctic or temperate climates. There were never any willows in Babylon of any kind, and harps could not be hung on them. The nearest ally to the willow there is a poplar—Populus Euphratica—but it is extremely improbable that harps were hung even on these. Those the most familiar with the flora of Ancient Babylon seem to have settled down to this, that our common oleander, of which they used large quantities in their gardens, was this tree of the Babylonians on which their harps were hung. But those who know of the deadly poisonous juices of this plant will be slow to believe that there was much handling indulged in, either by hanging harps on the branches, or otherwise. If we take the phrase as a figurative or poetical one, expressive of the sorrow that was involved by continued captivity, and the oleander as the expression of joy and happiness, we may find some ray of explanation. At any rate, the translation "willow" is an unfortunate one, as it leads to much misconception of the surroundings of the Jews in those ancient times.—*Public Ledger.*

GROUNDS OF D. LANDRETH.

BY HORTUS.

The pleasure grounds of David Landreth & Sons, connected with their seed farm near Bristol, twenty-four miles north of Philadelphia, and facing the River Delaware, is an excellent specimen of landscape gardening, especially in regard to ornamental trees. It is enclosed from the river road by a Norway spruce hedge, six feet high and three feet thick. The varieties of trees and shrubs are numerous and select. The evergreens are of various sizes and habits of growth, from the Creeping Junipers and Periwinkles, which crawl upon the ground, to the most lofty and gigantic in proportions. Many of the trees are said to be the largest and handsomest in the nation. A great number of choice evergreen shrubs are there, the most noteworthy being numerous kinds of Rhododendron growing in various exposures and which flourish and bloom profusely without culture. The deciduous trees are noble specimens. Magnolias, Horse Chestnuts and Virgilias especially furnish fine specimens. The gem of deciduous shrubs is Belgian Azalea. There are numerous species of creepers and climbing vines. Ampelopsis Veitchii clothes the walls of a long and wide building, two stories high on three sides. It is remarkable for spreading its branches in a horizontal direction as well as upright. Its foliage is beautiful. Bignonia radicans and Wistaria sinensis climb upon and clothe large trees and bloom profusely in their seasons. The contrast of the sizes, habits of growth, and hues of foliage of the various species in the arboretum makes a rare picture of beauty. Numerous flower beds, vases, rockeries &c., are planted with choice blooming and ornamental foliage plants and lighten up the grounds, which are kept in admirable style. The lawn grass, I found greener than upon other places in the same neighborhood. The partial shade of the trees will no doubt soften the radiancy of the sunshine and ward off the injurious effects of the aridity of the heated air during summer. The Park has been made and planted within the past thirty five years. For the first fifteen years the trees (both evergreen and deciduous) were annually pruned into good forms, and to keep them upright.

EDITORIAL NOTES.

JOHN JAY SMITH.—Our good friend "Jacques," with this month drops out of the circle of our esteemed correspondents. That which appeared in our last, was literally written on his death-bed. His love of useful activity amidst a life of physical pain, was as successful as remarkable. He died at Germantown on the 23rd of September in his 84th year. It is the misfortune of those who live to a greater age than their contemporaries, that no one is left to tell the full story of their useful lives; and much which they should be credited with remains untold. In the present case none of the sketches that have appeared do justice to his career as an eminently useful horticulturist, and as a laborer in those branches of intelligence which bear on the pleasures of rural life. Hoping to do something in this line to the memory of our friend, we shall defer a fuller account of his life and services to our next number.

ROBERT KILVINGTON.—Among the celebrated Florists of Philadelphia who have recently passed away, the subject of this sketch deserves remembrance. He was the son of a Yorkshire squire, and was born in the year 1803. All of his relatives moved in the high circles of English society, and some of them like Kilvington emigrated to this country. Dr. Thos. B. Wilson, one of the founders of the celebrated Academy of Natural Sciences, and one of its most generous benefactors, was his first cousin, and the eminent Dr. Spackman, is also a cousin by another of his father's sisters. Devoted to horticulture, Mr. Kilvington became gardener to Mr. Sheaff of White Marsh, about fifteen miles from Philadelphia, which for many years was famous in the history of American gardening, and earned for itself an honorable notice in the great landscape gardening work of A. J. Downing. Mr. Kilvington subsequently engaged in the Florist's business. His excellent education, and fondness for scientific pursuits, gave him great influence among the more intelligent classes of horticultural amateurs, and aided greatly in the eminence which Philadelphia horticulture once obtained. He was an enthusiastic worker, and gave the success of the Pennsylvania Horticultural Society his constant care. He never married, and seemed to have no ambition to make money, though at one time worth probably fifty-thousand dollars. In his old days what he had saved gradually passed from him, and he earned a mere daily pittance in the end, as porter to a public Institution. He died at seventy-eight leaving nothing behind him, but a large herbarium of dried plants, and a name connected with a long life of singular horticultural usefulness.

WM. RENDLE.—This gentleman invented the plan of heating by hot water tanks. He died at Eastbourne, in England, on the 3rd of September, aged sixty-one

WEEPING WILLOW.—There has been so much of the imaginative mixed with the real—even "Encyclopædias" copying without question incredible stories—that we have thought the chapter from the Philadelphia *Public Ledger* in another column, would interest our readers.

THE BLUE-BELLS OF SCOTLAND.—In the "Flowers and Ferns of the United States," the writer of this suggests that Hairbell or Harebell, as applied to this plant, should be abandoned, for the name at the head of this paragraph, because it is evidently not what was originally intended by the name. The wild Hyacinth of England is the true Harebell, and so called because of its early growth and abundance, it made an excellent cover for hares. The note from "Flowers and Ferns" has caused some discussion in England, with the result of confirming the American view. The following paragraph from "*Science Gossip*" gives some good suggestions in regard to it: "May not hare be only a corruption of haere, haer, haire, all of which means hair? Hooker and Arnott, in their British Flora, have hair-bell as also has Babington. In "Witherings British Plants," 1880, he gives the name Heath-bell, Hare-bell, and Witches Thimble. In the 1841 edition, corrected and conducted by William McGilivray, the Harebell is referred to *Hyacinthus non Scriptus*. Mr. Lynn if he had turned to Chrystoffel Plantains Kruydtboeck 1581 would have found a plant called Hares Baloches in addition to other plants associated with the Hare."

SUN DIAL PLANT.—A correspondent says this is one of the English names of the Anagallis arvensis. The editor's children call it "poor man's weather glass," and take delight in watching its apparent relations to the weather.

GEORGE HUSSMANN.—This well-known grape grower, who has been for forty-four years so closely identified with fruit growing in Missouri, and who has been for some years horticultural editor of Colman's *Rural World*, has taken the presidency of the great vineyard enterprise of Col. Simonton, Napa City, California.

SWINDLING TREE AGENTS.—Charles Patterson of Kirksville, Mo, has published his views about Swindling Tree Agents He finds in effect that this class comes from the greed of those who want to get a dollar's worth for a quarter, and it is to satisfy this greed that the swindler invents his lies. The honest agent can scarcely live, because the people want the best things for nothing.

MR. CHARLES LEE.—Few English nurseries have been better known than that of the Lees at Hammersmith, near London. Mr. Charles Lee, son of the original founder, died on the 2d of September in his seventy-third year. His son William, who has been in partnership since 1877, will continue the business.

STATISTICS OF GRAPE CULTURE.—Among the many useful works of General Le Duc is the statistics of grape culture now before us, com-

piled by the chemist of the department, Dr. McMurtrie. Fifteen hundred circulars were sent out and about half responded. Among the many interesting facts brought out by this report is the slowness with which new varieties replace the old. Concord, Catawba, Isabella and other famous old kinds are yet represented over a large extent of country. Another singular thing is the steadiness with which grapes decline in some localites. An Egg Harbor correspondent, for instance, reports that when Concord was first planted in that part of New Jersey twenty-five to thirty pounds could be taken from one vine, but this has gradually declined until two pounds per vine is about all the same vines will produce.

There is evidently a tale to tell about this matter, which, to an intelligent questioner, the vine would be glad to tell. To our mind improper culture is at the bottom of it all, but it will never do to tell an old "Vigneron" that he does not know what he is doing, and so the old story that "varieties wear out" goes running on.

NOTE SUR L' HORTICULTURE EN ALGERIE, PAR M. V. CH. JOLY, PARIS, 1881.—Mr. Joly has recently enlightened his brother horticulturists on English horticulture, and, as we have recently noted, horticulture in America. Now he has an equally interesting paper on Algeria.

It is well known that Algeria in the North of Africa is a French colony, and M. Joly compares the method of colonization with methods pursued in our United States colonization, in which he pays great compliment to our immigration companies and contrasts our fertile soil, coal, oil, mines of all kinds, and other attractions, with the fanaticism of the Musselman, ever an evil, not only by the antipathies of race, but also of religion, and of whom the French colonist has 500,000 to contend with. Then there are no regular rivers of water, but by irrigation there is great success in the production of fruits, legumes and flowers, notwithstanding the frequency of the question how is it possible to successfully colonize a place like Algiers, which is without water, without vegetation and without animals in a state of nature? The atmosphere is excessively dry, but not more so, he thinks, than in some of the arid regions of California and other parts of the United States. M. Joly, however, believes that by persistently planting trees over this arid region the climate can be changed, and rain be made to fall as plentifully as over the most favorable portions of the earth. He would begin by planting such as have been found to do tolerably well in dry places. Some eucalyptus and acacias are named. The Evergreen oak and the Pinus Halapensis, dates, palms, bamboos, bananas, dracæna draco, yuccas, aloes and agaves would be relied on, and if planted on a sufficiently extensive scale might so far change the climate as to make other plants practicable for culture. Of flowers now under culture, the most are grown for perfumers, the geranium leaf having a prominent place. Grapes and wine have a prominent place in fruit growing, the wine-making, however, seeming to provoke especially the fanaticism of the Musselman.

The author concludes by observing that "notwithstanding the absence of rivers and of coal, there are mineralogical riches of various kinds, under soil, which is favorable to the demands of almost anything which the climate will permit it to produce, and among the certainties are wine, oil and the cereals. For all the discouragements, the day is approaching, he hopes, when Algeria will rank among the richest colonies of the world."

THE IVY GREEN.

BY CHARLES DICKENS.

O, a dainty plant is the ivy green,
That creepeth o'er ruins old!
Of right choice food are his meals, I ween,
In his cell so lone and cold.
The walls must be crumbled, the stones decayed,
To pleasure his dainty whim;
And the mouldering dust that years have made
Is a merry meal for him.
Creeping where no life is seen,
A rare old plant is the ivy green.

Fast he stealeth on, though he wears no wings,
And a staunch old heart has he!
How closely he twineth, how tight he clings
To his friend, the huge oak-tree!
And slyly he traileth along the ground,
And his leaves he gently waves,
And he joyously twines and hugs around
The rich mould of dead men's graves.
Creeping where no life is seen,
A rare old plant is the ivy green.

Whole ages have fled, and their works decayed,
And nations have scattered been;
But the stout old ivy shall never fade
From its hale and hearty green.
The brave old plant in its lonely days
Shall fatten upon the past;
For the stateliest building man can raise
Is the ivy's food at last.
Creeping where no life is seen,
A rare old plant is the ivy green.

PLANTS OF WESTERN AUSTRALIA.—Dr. F. V. Mueller has recently issued a sketch of the plants found in Northwestern Australia, collected during the Trigonometrical Survey of Nickol Bay by Mr. John Forrest. The most noticeable is apparently a Begonia, the first species of this large genus ever found in Australia.

SCRAPS AND QUERIES.

THE FINE NIGHT BLOOMING CEREUS AT DAYTON SOLDIERS' HOME.—The fine plant at the Dayton Soldiers' Home was purchased of Mrs. Forrer, not "presented," as we printed it. Mrs. F. kindly makes the correction. It was the offer of the Home to purchase it, and, as she had a smaller one, she accepted their offer.

GARDEN BOOKS.—"G. W. McC.," Boulder, Col., writes: "Will you kindly answer the following questions in the GARDENER'S MONTHLY: (1) What is the best work on botany for a private student and gardener in the latitude of Colorado? (2) Which of the botanical periodicals would be most suitable for same? (3) Is there any work published on fruit-growing in Colorado or California? The standard works being based upon eastern methods are unsuitable for our climate and useless here. (4) What is the best treatise on mushroom culture? Will you give in the GARDENER'S MONTHLY a short, comprehensive account of the methods pursued by successful growers of mushrooms in the East, and the average profits of the same?

[To get a general knowledge of botany, as a science, so as to be able to understand all about a plant when we seen it, Gray's "Structural Botany" is as good for Colorado as for anywhere. For Colorado plants especially, Porter's "Flora of Colorado" is the only work which describes the peculiar ones in one work, but this is unfortunately "out of print," as the booksellers say, and only second-hand copies can be bought, and these not often. Beginning where the composite flowers end, and ending near the labiate plants, Dr. Gray's "Synoptical Flora of North America," contains all of the Colorado plants within those orders. When the rest of the work is completed by Dr. Gray we shall have all of the plants of North America, Colorado included, in one work. (2) Of strictly botanical periodicals, there are but three in our country: Case's "Index," quarterly, Richmond, Ind.; "Botanical Gazette," Crawfordsville, Ind.; and "Bulletin of the Torrey Club," New York City. They are cheap, and most working botanists take them all. It would be difficult to decide the best. Ten cents to each would no doubt bring a number, and then one could decide which suited his taste. (3) There is no separate work on Colorado or California fruit growing. The periodical literature, answering all questions, takes the bread out of the bookmaker's mouth. The "Pacific Rural Press" of San Francisco, and the GARDENER'S MONTHLY, of Philadelphia, give attention to these matters when it is brought before them. The editor of the latter magazine has been four times through the State, and has experienced correspondents there. (4) So far as we know, no one has as yet made a specialty of growing mushrooms for market. If so we shall be glad to hear.—Ed. G. M.]

HORTICULTURAL SOCIETIES.

COMMUNICATIONS.

AMERICAN POMOLOGICAL SOCIETY.

Address of Pres. M. P. Wilder, at Boston, Mass., Sept 14 15, 16, 1881.

(Continued from page 320.)

PRODUCTION OF NEW AND IMPROVED VARIETIES FROM SEED.

To encourage and extend this most beneficent branch of Pomology is part of the design of this Society, whose purpose and aim is to prescribe the fruits which may be adapted to the various sections of our ever increasing territory. These are the means which Providence has placed in our hands; and the only means for accomplishing this object is the production of new and valuable varieties of fruits. The scientific laws upon which this science is founded are as fixed

and certain as those of moral or natural philosophy, the same yesterday, to-day, and forever, and although we may not now be able to prescribe the exact limits to which improvement may be extended, we do know that upon the subtle forces of hybridization, either accidental or by the hand of man, we must ever depend for the improvement of our fruits. Natural hybridization or the cross impregnation of plants, as we have said before, is as old as creation, and must have given to man the first idea of the power placed in his hand for the improvement of the species. God works by means, in nature and in grace, and requires us to join our efforts with His. "Seek and ye shall find; knock and it shall be opened to you," were the original conditions. Nor do we doubt that this art was confided to man by the Creator, that it might be developed to its utmost extent in the improvement of both animal and vegetable life.

Thus, we are to work, in accordance with His command and that divine wisdom which is ever tending towards a higher state of perfection—nature is the handmaid, man the agent to cooperate with her—and the highest triumph of his skill is to control and elevate her for the benefit of our race. "It is the part of man to create," says Ralph Waldo Emerson, "and his profession as a cultivator of the soil, too, stands nearest to God, the first cause." The first seeds sown by man were the germs from which sprang the civilization, elevation and refinement of the human race. So it is with the amelioration and improvement of our fruits. From the sour crab, the puckery pear, the bitter almond, and the austere plum, came the tender spicy apple, the melting juicy pear, the velvet luscious peach, the delicious or golden plum, and from our rank foxy grape, came the splendid varieties which now adorn our tables and "make glad the heart of man."

The laws of reproduction we do not now fully understand, but from the improvement which we have already witnessed we have reason to believe that we have only to become familiar with their operations, and our efforts will be crowned with success. There may be a limit beyond which a fruit may not be improved; but the marvel is, that, considering the inferior character of the fruits of former days, we have been able to produce so many of the fine varieties which now grace our exhibition. And when we take into consideration the number of fine varieties of American origin which have been produced during the existence of our society, we have cause for the greatest encouragement and perseverance.

But great as our acquisitions have been, still greater results are to follow. When we look at the advance in strawberry and grape culture, and the numerous fine kinds which have been originated from seed within a few years, who is not desirous of renewing his efforts in the prosecution of this good work.

It is strange that Duhamel had so little confidence in obtaining good pears from the natural seeds, and we cannot account for his ill success in any other way except that of sowing the seed of poor varieties. But thanks to Van Mons for his enterprise, although the improvement which he claimed from the process of amelioration by sowing the seeds of successive generations of the pear, we believe came from the natural crossing of his best sorts in the same grounds. Thanks, however, everlasting thanks to him for his advice "to sow, re-sow, and sow again the seeds of your best fruits, as the only means of obtaining good fruits." And now, my friends, had we commenced sowing the seeds of our good fruits early in life in accordance with his advice, we should now have an abundance of excellent kinds adapted to our respective locations. On my own part I have to say, that could my life be prolonged for another fourscore and three years, I would devote them all to the promotion of this most benevolent and interesting employment.

And now in the fulfillment of my promise ever to speak to you of the importance of raising new varieties of fruits, which may be adapted to general cultivation or to particular localities, I have to urge on you, even at the risk of repeating what I may have said before, the duty of continuing your efforts in this most philanthropic enterprise. Every year affords us additional evidence, in the acquisitions of new and valuable kinds, and of the ease with which they may be possessed. These are the only methods by which we can expect to obtain new and improved fruits or to produce substitutes for those which may in time become deteriorated and unprofitable for cultivation. We, therefore, hail with pleasure the widespread interest which is now manifested in this most laudable pursuit. The process of hybridization is simple,

whether by the air, insects, or the hand of man, and we have only to have due regard to the characteristics of the parents from which we breed.

Thus, as it were, "line upon line and precept upon precept," I have endeavored to impress on you the importance of this branch of our science, and as it was my first, so it shall be my continual and last advice,—"*plant the most mature and perfect seeds of the most hardy, vigorous, and valuable varieties: and as a shorter process, insuring more certain and happy results, cross or hybridize your best fruits.*"

RAISING THE STANDARD OF QUALITY OF OUR MARKET FRUITS.

In connection with this department of work let me call your attention to the importance of raising the standard of quality of our market fruits, not only for our own markets, but for exportation which is hereafter to be one of our most important branches of commerce. True, we have many varieties whose combined characteristics render them very important and useful, like the Wilson strawberry, the Concord grape, and the Baldwin apple. These, however, are not of so high a quality as we could desire, but until we can produce others of superior merit, in this respect, they will still be of great value. But can we not retain their good points for transportation, and unite them with better quality? I think we can. The same elements which have given us the Iona grape, the Sheldon pear, and the President Wilder strawberry, can give us others of equally good quality, and at the same time productive and adapted to transportation. These are stepping stones upon which we are to rise to higher excellence, and I doubt not that we shall now, if we have not already in possession, numerous varieties as good as those named, and with the other qualities that make them valuable for distant markets.

If we can put into the market alongside of the Wilson strawberry another variety as productive and as good a carrier as that, but fifty per cent. better in quality, there can be no question that the Wilson would be no longer supplied. Other illustrations might be drawn from grapes—apples—and from pears like the Beurre Clairgeau, beautiful, but of poor quality. There is no doubt varieties combining size and beauty, vigor, productiveness, and profit, with fine quality, will be produced, and we must make this our aim, and not give up until we reach it. If we can get another pear of as fine quality, healthy constitution, and general adaptation, as the Beurre d'Anjou, and ripening earlier, or, what is still better, ripening later, it will be an invaluable acquisition to our list, though already long extended. Ninety per cent. of our export of apples are Baldwins; but if we can get another with the color and the enduring spirit and vivacity and ease of culture of that variety, combined with the greater refinement and delicacy of the Northern Spy—and we can—it will be another invaluable acquisition.

Why should we not have another pear as fine as the Dana's Hovey, or Seckel, but of larger size? Is there a limit to the amount of flavor that can be put into the pear, so that when diffused through a large fruit it is not so high flavored? The Wilson strawberry, the Concord grape, the Baldwin apple, can be grown by everybody, but we want grapes, strawberries, pears, and apples for the million, possessing all the properties that have made these such universal favorites.

"There is a wide field open to the originator of hybrids," says John J. Thomas. "We want another pear as hardy as the Duchess, free from blight, as handsome as the Clairgeau, and as good as the Seckel, outbearing the Bartlett, and a month later; another apple as good in other respects as the Baldwin, but better in quality, as the Swaar. We should not be satisfied with a currant less in size than the Delaware grape and as reliable as the Red Dutch, or until we acquire a strawberry with the general adaptiveness of the Wilson, and of the quality of the President Wilder."

And while upon this branch of our subject let us not forget the importance of maintaining a proper regard to other characteristics of a good fruit. So long as we raise fruit to eat we can have no hesitation in giving the first place to *its eating qualities*. Next in importance is *durability*, or keeping; that is, the property, whether early or late, of remaining sound after being gathered. The third requisite is size; but while we desire those of liberal size we should not forget that one of monstrous proportions is neither desirable for the market nor for table use. But whether large or small, a variety should be uniform in size. Beauty, color and form, will always be regarded as of great value. Brilliant colors will charm the eye, although they may not gratify the taste, but a misshapen, ugly form will never be

tolerated by any one of cultivated taste. I have dwelt upon this branch of our subject—and I would, if possible, enforce my views upon it still more strongly—not only because I desire to see the quality of our fruits raised, but to save the American Pomological Society from the reproach of recommending fruits, otherwise unworthy, because "there is money in them."

I have spoken of the latter point with some reluctance, but from the belief that too much regard is being had to the size without regard to the form or beauty of fruit. If it be deemed advisable to give premiums to enlarge the size of products, as for instance, the biggest strawberry, squash or other monstrosity, let it be done for size without regard to form, color, or quality, and not for the "largest and best," as is generally the custom. In considering perfection of form and quality before monstrous size, the growers of vegetables are in advance of pomologists. It is our duty to correct public taste by our example, and not to encourage the growth of monstrosities or misshapen fruits which, if applied to the apple, pear, or even the potato or turnip, would not be worthy of cultivation. Well has Mr. Meehan in his recent monthly said, in regard to these ill-formed fruits, twisted and deformed to an outrageous extent, "May the time soon come when beauty of form shall be regarded as important as beauty in color."

THE GRAPE.

In order of discussion I have placed the grape first in our roll. No other fruit, unless it be the strawberry, now attracting so much attention, and perhaps no other, if we except the apple, is of more importance as a source of revenue, or an article of luxury for our tables as the grape. No other country possesses such a vast extent of territory, or possibilities for its successful culture, and in no other section of the globe is there, at the present time, such encouragement thereto. In fact, it seems as though Providence had designed many parts of our continent especially for its cultivation. The Scandinavians, as the Sagas have it, eight hundred years ago, here found the vine growing so abundantly that they gave to our coast the name of Vinland. Champlain, in his voyages on our coast about five hundred years afterwards, saw vines in abundance. The pilgrim fathers, at Plymouth, found grapes, "white and red, and very strong," and should the phylloxera continue its devastation in the vineyards of the old world, our country may become the most favored vineland of the world.

In the whole circle of our pomological progress there is no fruit which excites so much enterprise and interest, so rapidly being extended or which gives greater promise of success, as the culture of the grape, and should this same enterprise continue for fifty years to come, we can hardly estimate its value as a revenue in our country. All localities are not equally suited to its growth, but where our wild species are found, other new and improved sorts, produced by hybridization, will be found equally well adapted. With every succeeding year new and valuable varieties are coming to notice, either adapted to special locations or purposes, as for general cultivation. Nor is it too much to hope that ere the close of this century, with our present zeal and skill, we shall produce varieties that will rival the choicest kinds of the most favored climes. Even now we have those which compare favorably with our foreign varieties, and we believe the time is not distant when the aroma of our native sorts, now so much despised by some, will become, when chastened down as it has been in the Brighton, Duchess, Rochester, and Monroe, one of the excellent characteristics of our American grapes.

How potent the influences of this art! Little did Mr. Bull think what a blessing he was conferring on the world when he sowed the seed which produced the Concord grape,—the mother of so many improved varieties. See the number of white varieties (not to speak of others) which have been produced mostly from this: the Martha, Lady Pocklington, Lady Washington, Hayes, Ann Arbor, Prentiss, Duchess, and still another soon to be within our reach, which is heralded like Niagara herself as one of the wonders of the world.

The illustrations of this improvement are manifested in the numerous seedlings obtained by crosses on the Concord, some of which are of a very remarkable character, possessing great size and beauty, and whose vigor and productiveness are declared to be even greater than that of their mother. We see this improvement also in the crosses of a wild grape with the foreign species by Rogers, as shown by the amelioration of the native aroma in the Barry, Wilder and Lindley, the last named, like the Jefferson of Ricketts, possessing a peculiar rich flavor which might with propriety, be denominated and may yet be distinguished as the Muscat of America. Nor do

I doubt that we shall in time produce varieties which will compare favorably with, and perhaps be equal in size, beauty, and excellence to the Cannon Hall, or other Muscat, now so highly praised for their peculiar aroma. The Pocklington, in size and beauty, is an approach to this. Nor is it unreasonable to suppose that we may have a grape, if we have it not now in the Duchess, that is as well adapted to exportation as the White Malaga, and of much better quality. What has been done can be done again. Nature has in her laboratory infinite stores of the same elements which have produced our finest fruits, and we have only to knock at her portals, and pronounce the SESAME, when she will open to us the secrets of her wonder-working power. These predictions may be considered as the fantasies or vagaries of imagination, or as indications of too ardent desire for progress. No, no, neither are they the results of chance. They are founded on those immutable laws which govern all sciences, in the control of mind over matter, and the power of man to assist nature in her onward march to higher and higher states of perfection. That we shall possess such improved varieties as we have predicted we have no reason to doubt. Our country is large and varied in climate and soil. Though we of the North cannot expect to grow tropical fruits,—nor may we grow a grape of the excellence of the Black Hamburg suited to out-door cultivation,—yet we can produce fruits of great importance to ourselves and of inestimable value to other portions of our country, as we have seen in the Baldwin, Rhode Island Greening, and Roxbury Russet apples, and the Diana, the Concord, and Rogers grapes, the Bartlett pear and other fruits which have been sent out from New England.

(To be concluded)

EDITORIAL NOTES.

SOCIETY FOR THE PROMOTION OF AGRICULTURAL SCIENCE.—As noted in the *Gardener's Monthly*, last year, a society made up mainly of the members of the American Association for the Advancement of Science, who are interested in agricultural pursuits, was formed with the above title, and which fully expresses the aims and objects of the body. It meets the day before the American Association meets, and in the same place. The second annual meeting was held in Cincinnati, and did good work. Papers were read from Dr. Halsted, J. J. Thomas, Prof. Beal, Prof. Kedzie, Prof. Caldwell, Prof. Bremer, Dr. Sturtevant, and L. B. Arnold. Prof. Beal is president, Dr. Sturtevant, secretary. The next meeting is at Montreal.

EUROPEAN HORTICULTURAL SHOWS.—Many of the most successful European exhibitions are held on the beautiful grounds of some tasteful amateur patron of the art, and the desire to have a good day with friends, examining the pretty landscape, has much to do with the success of the exhibition. The poet, Tennyson, has magnificent grounds on the Isle of Wight, and he is also the president of a horticultural society there. The meeting was held on his grounds. No less than 650 persons competed for premiums, which alone shows the widespread love of the English people for gardening. Admission to the grounds was fixed at sixpence, and an immense number paid it.

ENTOMOLOGICAL SOCIETY OF CANADA.—The annual meeting was held at London, Ontario. In his address President Saunders noted that "the Angoumois grain moth Butalis cerealella Oliv. is a small moth, the larva of which is very destructive to all sorts of grain. The female lays her eggs on the grain sometimes in the field before it is fully ripened, but more frequently in the bins of the granary. The eggs are of a bright, orange, red color, and in a few days there issue from them very minute whitish-colored worms, scarcely thicker than a hair, which bore into the grain and occupy it, one larva in each kernel. Each kernel contains sufficient food to support one occupant, until it reaches maturity, when it changes to a chrysalis within the grain, which, although hollowed and almost entirely consumed within, appears outwardly sound and plump. On pressing between the fingers the grain is found to be soft and yielding, and when dropped into water it floats on the surface. This insect is a native of the warmer parts of Europe, and has long been very destructive in France. It was introduced into the southern portion of the United States more than 100 years ago, where it has become fully naturalized. It is often brought into New York in cargoes of grain, but the climate of the Northern United States and Canada appears to be too cold to permit it to thrive amongst us, or to permanently establish itself. It has never yet, to my knowledge, been found within the limits of our province."

Of the army worm he notes that "during this summer the moths (Leucania unipuncta), which are always present with us to a greater or less extent, have been unusually abundant in the western portion of our province. To the sugar-bait, employed by entomologists to attract night-flying moths, these insects have flocked by hundreds, and this has been observed not only in Ontario, but also in the Western States, showing that this moth has been unusually abundant over an extended district. Millions of their eggs must have been deposited on the leaves and stems of grasses, but the intense drought we have had has probably deprived the newly-hatched larvæ of the food necessary to their existence, and we may hope that the evil we have suffered from in the way of drought has saved us, to a great extent, from serious invasions of army worms next year."

Concerning a new grass plague he says: "During the summer a small moth, well known to entomologists as a common insect throughout the Northern States and Canada, but never recorded as destructive anywhere, has invaded the pastures in some parts of northern New York, and inflicted great injury. It is a species of Crambus, Crambus vulgivagellu."

Of a corn enemy he says: "This is a small beetle closely allied to the common striped cucumber beetle, and known to entomologists under the name of Diabretica longicornis. In Illinois the damage caused by the larva of this insect has been considerable." It does not appear to have reached Canada.

The following concerning the potato beetle is curious: "It has been claimed, and I suppose correctly so, that this pest originally came from the canons in the Rocky Mountains, in the State of Colorado, where it is said to have fed on some wild species of Solanum growing there. It was my privilege, during the latter part of August of this year, to spend a week in this district, and while there I traveled fully one hundred miles through those cañons. Several species of wild Solanum grew in abundance almost everywhere in the adjoining plains, as well as in the canons, and every opportunity was embraced of examining them, but in no instance could I detect any evidence of the presence of the Colorado potato beetle in any of its stages."

Our impression is, that they were supposed to belong to the plains of Colorado, and not the mountains. It seems to the writer that he saw some on the plains in eastern Colorado in 1871, but is not sure. At any rate it must have been somewhere about this region that Say first saw the insect and described it.

The following very interesting paragraph will explain many curious things in the life-history of insects, especially why the seventeen year locusts appear at different years in some parts of the country. In some districts in the past an area may have held over for a year or two.

"It is well known that the seeds of certain noxious weeds will sometimes lie dormant in the soil for almost any number of years awaiting a favorable opportunity for germinating, but it is not so generally known that the development of insect life is sometimes similarly retarded. It has many times been observed that a few individuals out of a large brood of moths will remain in the chrysalis state over one season and produce the perfect insect the following year, thus remaining a full year more in the dormant condition than is usual, and instances are on record where the perfect insects have escaped after three years spent in this condition of torpor. Recently, Prof. Riley, of Washington, has called attention to a very remarkable case of retarded development in the eggs of the destructive Rocky Mountain locust, Caloptenus spretus. These eggs were laid in 1876, on the grounds of the agricultural college at Manhattan, Kansas. While grading the ground around the chemical laboratory in the autumn, a quantity of the eggs were buried some ten inches below the surface, the covering material being clay, old mortar and bits of stone, and above this a plank floor. On removing and re-grading the soil last [illegible] a number of these eggs were disinterred, quite sound and fresh looking, and when exposed to normal influences they readily hatched, so that these locusts' eggs actually remained nearly four years and a half in the ground unhatched, or four years longer than is their wont. How much longer they would have retained their vitality, under favorable conditions of temperature and dryness, is unknown. This point has a very practical bearing and deserves further investigation, not only in reference to the eggs of this insect, but to those of all injurious species whose eggs are deposited on or under the soil."

PENNSYLVANIA HORTICULTURAL SOCIETY.—A correspondent writes that he has seen no notice of the annual meeting. The burned hall, now rebuilding, is not finished yet.

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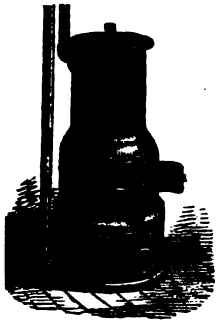

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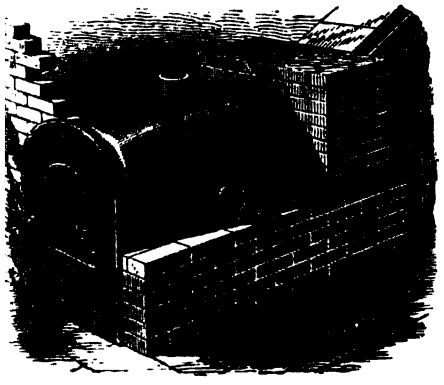

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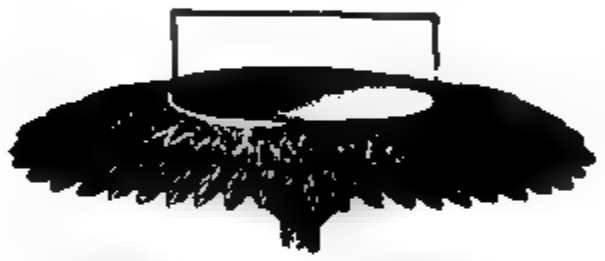

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Alocasia Macrorhiza variegata, foliage handsome,	40	4 50	
Ampelopsis Veitchii, superb hardy climber,	15	1 20	8 00
Anthericum vitatum, foliage green and yellow,	15	1 20	8 00
Antigonum leptophus, new Summer climber,	25	2 40	18 00
Ardesia crenulata, 2-inch pots,	15	1 50	10 00
Azaleas, assorted flowering plants, 3-inch pots,		1 50	10 00
" " " " 5- "	40	3 60	25 00
" " " " 7 and 8-inch pots,	2 00	18 00	
Begonia rubra, flowers bright coral,	15	1 50	10 00
" **rosea,** flowers light rose,	15	1 50	10 00
" **metalica,** foliage metal-like,		1 00	8 00
" **Louis Chretein,** new,	25	2 40	
Bertilonia Van Houtii, beautiful ornamental-leaved plant,	50	6 00	
Bouvardia Alfred Neuner, new, double white, 2-inch pots,	15	1 50	10 00
" " " " 3-inch "	20	2 40	15 00
" " " " 4-inch "	30	3 00	20 00
Camellia Japonica, alba plena, old double white, all with buds, 2 to 3 feet,	2 50	24 00	150 00
" " " " " 2 feet,	1 50	15 00	100 00
" " " " 18 to 20 inches, 5-inch pots,	1 00	10 00	75 00
" " " " 10 to 12 " 4- "	50	5 00	40 00
Camellia alba plena, without buds, 3 feet,	1 50	12 00	100 00
" " " " 2½ feet,	1 00	9 00	75 00
" " " " 5-inch pots, 18 inches to 2 feet,	75	6 00	50 00
" " " " 4- " 1 foot,	30	3 00	25 00
Cissus discolor, climbing, handsome foliage,	10	1 00	8 00
Clerodendron fragrans, white flowered, fragrance of the Daphne,	15	1 50	10 00
Crotons, in twelve kinds,	25	2 40	
Daphne odorata, 2-inch pots,	15	1 50	10 00
Dieffenbachia Bowmanii, Bausei and **Picta,**	50	3 60	
Dracsena, in six kinds,	50	6 00	
Euphorbia pleniissima, double,	30	3 00	
" **alba,**	30	3 00	
Eranthemum tricolor,	15	1 50	
Eucharis grandiflora,	50	6 00	
Cardenia Florida, Radicans, Fortunii, 2-inch pots, strong,		1 00	6 00
Hydrangea, Thos. Hogg, white,		1 00	6 00
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Perle des Jardin (The Florist's Rose),	1 20	8 00
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PROOF THAT THIS TERRIBLE DISEASE CAN BE CURED.

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THE

GARDENER'S MONTHLY

AND

HORTICULTURIST.

DEVOTED TO HORTICULTURE, ARBORICULTURE AND RURAL AFFAIRS.

Edited by THOMAS MEEHAN.

Vol. XXIII. DECEMBER, 1881. Number 276.

FLOWER GARDEN AND PLEASURE GROUND.

SEASONABLE HINTS.

Gardening does not merely consist in having a piece of ground with some grass, some trees, and some flowers; but it means a study of these things so as to get the most pleasure from the materials at command. The study of gardening should be like the study of any other art. We may see "General Washington" or the "Konig Wilhelm" on a tavern sign, and know very well whom the paintings represent,—yet we would not have them hung in our parlors. We want something better. It is just as true of gardening. There is the same difference between a good garden and a mere "yard" as there is between a good painting and a mere daub. Gardening, as an art, is a pretty study. Let us hope the winter will not pass away without a thought of this.

Our readers will not forget the experiences of the past memorable winter, and how plants had the moisture dried out of them by the extraordinary combination of three agents all in one day, namely, a dry air with high wind, a low temperature, and roots so deeply frozen that their ability to absorb moisture was seriously impaired. It is hardly likely that these three agencies, all so favorable to a destructive loss of sap, will occur together so soon again; but we can learn from this the importance of preserving plants from losing their juices too rapidly. This can be done in some degree by laying a mulch over the roots on the surface of the ground, which will prevent the ground from getting frozen to the full depth of the roots. Besides this we have often pointed out the advantages to places of being sheltered from cold winds in winter by belts of evergreens. This advice will be appreciated at this season. Many plants like the Deodar Cedar, Cedar of Lebanon, and English Holly, can only be grown in this region, when the plants are protected by these belts. The best kinds of Evergreens for making belts, on account of their rapid growth and warmth imparting character, are the White Pine, Scotch Pine, and Norway Spruce; among deciduous trees the Larch, Silver Maple, Birch, Scotch or Sycamore Maple, and the Cottonwood Poplar, which can be cut away as the others grow.

Besides trees for shelter, good hedges serve the triple service of shelter, protection from trespass, and beauty,—setting aside their cheapness as compared with lumber fences, now that their proper management is understood, their superiority in the points we have designated gives them commanding claim on every one's attention. They need not be always of evergreens. Beech and Hornbeams are excellent deciduous things.

Thinning is not nearly enough practiced. We often hear people complain that their trees were originally planted too thick. This is rarely the

case. The warmth of thick planting makes all grow faster; and besides who wants to look at a skeleton of a place for a dozen years, while the fleshy branches are growing over it. The true philosophy is to plant thick, and thin annually.

In the Southern States, more active operations will be going on preparing for spring work.

Many kinds of trees that do not seem to thrive well, will be greatly improved next year by having a surface dressing of manure or rich soil thrown about them. Evergreens are no exception. A singular notion used to prevail, that manure of any kind was injurious to evergreens, probably through noticing that they were usually found in poor, barren soil. Our best American coniferæ growers, however, have long practiced manuring them, and with the best results. Guano has been found particularly beneficial to the Spruce family, and it will probably be found as good for the whole family of evergreens.

COMMUNICATIONS.

THE STREETS OF OUR CAPITAL.

BY F. L. OLMSTED.

Washington has gained more in outward appearance during the last half dozen years than it had before in half a century. It now has forty miles of better pavement than can be found in any other American town, and which compares favorably with any in Europe. This has made thorough street-sweeping practicable at small cost, and it results that, though the city is but poorly supplied with water, it is little afflicted with dust and is beginning to have a refreshingly clean aspect. But your readers will be more interested to know that on lines bordering these streets there now stand, fairly started, upwards of a hundred thousand well formed nursery-grown trees. Maples of several species are the more common, but there are representations (by the hundred) of at least six different genera. They are at present but club-headed saplings, hardly recovered from the shock of transplantation, or fairly settled in their new homes, and show none of the characteristic mature beauty of their several families. They have as yet, therefore, little value except as promissory notes, their growth to be discounted. Nevertheless, seen as they constantly are, in long perspectives of uniform mass and color, their effect on the city is absolutely transforming and, if all goes well with them, Washington will in a few years be a new and glorified city; a capital that Americans may be proud of; supreme at least in its street beauty, whatever monstrosities in building fate may have in store for it. It can hardly fail in April and May to become a great pleasure resort.

But, more than this is to be said; the streets of Washington ("if all goes well") will become a national tree-school, providing a standard, a stimulus and an incentive for the improvement of every village and hamlet in the land, and it may be well to add that if those able, as your readers must generally be, to foresee the future value of this work, will but let their intelligent applause be heard by members of Congress, it may prevent the occurrence of such a catastrophe, as under our present political customs, is always hanging over every beneficent enterprise as soon as it is well started. The commission of thoroughly competent experts, (Smith, Saunders and Saul,) should be warmly and effectively sustained at every pertinent opportunity.

They have yet a vast barrier of indifference, ignorance and active prejudice to overcome—not against their objects or the results of their work, but against the essential conditions of lasting success. Any one who has watched the various processes by which nine-tenths of all the street trees planted throughout the country are killed, stunted, distorted, mangled, and hardly one in a thousand suffered to attain its full, natural, manly beauty, will understand what they mean.

But in spite of what has been gained in the two particulars named, in a rapid development of gardening decoration, and in a large addition of private dwellings of a more or less elegant character, the greater part of Washington, outside the lines of its public plantations, yet retains much of its old, ante-bellum character, as of a slovenly woman here and there bedecked with trinkets both choice and rubbishy. Two offences to good taste are at this time particularly conspicuous, and all the more so because of the neat, trig and genuine quality of most of the new brick, tile and stone work.

The first results from efforts at cheap, tawdry and garish display in the embellishment of door-yards and lawns; the second from the necessity which has resulted in the recent grading down of streets, of leaving miles of formal earth-

works between them and the houses fronting on them.

The fields about Washington are turfless, and good turf is only to be had by a tedious process, with great care and labor, and through the heat of summer only by a profuse command of water. There will soon be thousands of houses here, planted on banks from four to ten feet above the sidewalk, with flat, formal, steep slopes, such as even in the climate of England, and with the best of soil and gardening skill it is hardly possible to maintain turf upon suitable to carry the eye up to a house of refined materials and workmanship. The soil upon these slopes in Washington is such as one sees in going there from Baltimore in the railway cuttings; a cracking, brick clay and gravel, bearing naturally almost nothing but stunted "broom-sedge." But were it much better, proper turf in such a situation in the climate of Washington would be out of the question, and nothing more incongruous with the cut stone and plate glass which often appears behind it, or more positively dreary and forlorn than what now generally stands upon them for turf, can be imagined. It compares with true turf as a ragged and dirty door mat compares with a table napkin. As the arrangement has been forced upon the people, and such banks cannot, in many cases, be now avoided except at great expense, and as miles of them must be brought prominently into view to all visiting a city in which every American has a responsibility, the question of any generally-available, tidy treatment of them is one upon which good advice is greatly needed.

Nearly always it would be better, as far as practicable, to break art of rigidly mathematical forms; to obtain everywhere curving faces and especially to destroy angular crests. Next, a much more liberal use of shrubbery is desirable; not alone for decorative purposes, but for beautifully screening, or throwing into background retirement banks of dead and ragged grass. Even screens in the form of low, closely-trimmed hedges might be used. As Washington should appear well in winter they should be of evergreens; the best, if one had patience, probably of tree box or American holly; but it may be observed that after an exceptionally severe winter and a fearfully trying summer both yews and retinosporas of all species and varieties are looking very well in Washington.

After all that can be done in this way, however, should not the chief resort be to creepers? In Europe such banks are sometimes seen covered very perfectly and yet very snugly and daintily with ivy. They may be seen also dressed with periwinkle, but it is rarely in good order. Evergreen honeysuckle would almost surely succeed, but might look too riotous. Has the evergreen Euonymus had a fair trial as a carpet, carefully spread and pegged? Could anything be done with creeping junipers? Perhaps in some cases it would do to make a facing of rough stone, to be generally overrun with honeysuckle and clematis, but with breaks and niches supporting sedums and other dry-rock plants, and with outbursts of yuccas and drought-enduring shrubs, as the smaller sumachs and mahonias. Suitable stone is to be easily obtained about Washington.

Still another expedient that might be admissible in some situations would be a trellis set at the base of the bank and of sufficient height to obscure it without obstructing the view toward the house. The trellis to be covered, of course, with vines. Wire netting stretched on iron frames, with the simplest possible supports of iron, would be best. But one of cedar or sassafras poles might better be used than leave the banks in their present repulsive prominence. Such material is easily obtained any where about Washington, and it can be easily morticed and wire-bound together, and perfectly clothed with evergreen drapery in a single year. This would not be beyond the resources of a third class department clerk, a policeman or letter carrier, especially if he had boys to help him after school.

It would be of service to the Republic if you, good Mr. Editor, or if any of your experienced contributors would criticise these suggestions and name plants adapted to cover in a tidy way steep, high slopes, facing the sun, in the climate of Washington, and advise how, without much gardening skill, labor or cash outlay, they may be so managed as not to appear at any time of year unsuitably faded, meagre, ragged or sickly.

THE SCRUB OAK FOR HEDGES.

BY M. DIGRAM.

Many years ago Michaux, the botanist, suggested the following method of utilizing a very common shrub, or small tree, found everywhere throughout South New Jersey, and bearing the name of Quercus ilicifolia, or to adopt Michaux's term, Q. Banisteri, the holly-leaved, bear, or

black scrub oak. Our distinguished botanist says: "The presence of this oak is considered an infallible index of a barren soil, and is usually met with on dry sandy land mingled with gravel. It is too small to be adapted to any use; but near Goshen, on the road to New York, I observed an attempt to turn it to advantage, by planting it about the fields for the purpose of strengthening the fences. Though this experiment seemed to have failed, I believe the bear oak might be usefully adopted in the Northern States for hedges, which might be formed from twenty to twenty-four inches thick by sowing the acorns in three parallel rows. They would be perfected in a short time, would be agreeable to the eye, and probably would be sufficient to prevent the passage of horses and cows."

During the past summer, inquiries as to the use of Q. ilicifolia, as suggested, were made in the two localities of New Jersey where the hedge is the accepted mode of fencing, but without receiving satisfactory answers. The impression, however, in both places seemed to be that the bear oak had not yet been tried as a hedge plant.

An experiment to determine this small oak's value for hedging purposes could be tried so easily, and a conclusion could so quickly be reached, that I should suppose the simple presentation of the Michaux suggestion would be sufficient to induce several of our more enterprising nurserymen, or farmers, to become experimenters with it. As the plant is an abundant bearer of fruit, there would be no difficulty of obtaining all the seed needed.

RARER ORNAMENTAL TREES AND ORNAMENTAL GARDENING.

BY SAMUEL PARSONS, JR.

(Prize Essay for Massachusetts Horticultural Society.)

(Continued from page 325.)

On the other hand, if it were not for Magnolia parviflora, we should consider the somewhat longer known Magnolia hypoleuca, unrivaled in its way. This magnolia, of which there is a fine specimen on our lawn, is as hardy and vigorous as Magnolia parviflora. The leaves are much finer and longer, being over a foot in length, silvery underneath, with a bright red midrib and leaf stem. Creamy white and delightfully sweet-scented, Magnolia hypoleuca blooms as late as Magnolia parviflora, and apparently as sparsely. But sparsely or not, it is very pleasant to see such attractive flowers in June, having parted regretfully from our beautiful Chinese magnolia blossoms more than a month since. The silvery green and red of the leaves of Magnolia hypoleuca vary somewhat in beauty, but are always rich and effective. One specially noteworthy thing about many of the plants we have been considering, is their peculiar adaptation to places of the restricted dimensions of, say, half an acre or even less, a consideration which, I contend, is destined to carry more and more weight as the capacity for ornamentation of these small places becomes better understood.

I should have called your attention to a beautiful single white althea, the form of its flower is so simple and elegant; but we must pass on to larger trees. Among valuable hardy plants are the members of the entire genus of maples. Here, amid fringing shrubs, or standing singly on their outskirts, we find still other interesting kinds. Acer colchicum rubrum recalls the Japanese maples, for it too, is a Japanese maple and a very peculiar one. It grows and looks somewhat like Acer striatum or Pennsylvanicum, a species that seems almost identical, at least in appearance, with more than one species in Asia and Japan. Acer colchicum rubrum is properly Acer mono or lætum, and grafts only fairly on the Norway maple, the stock generally used. It is, indeed difficult to propagate at best, and therefore rare. The charm of the tree lies in its red twigs and rich red foliage in June, and also in its red second growth in late summer and early fall. Much of the tree, especially in summer, remains green, so that the numerous brilliant red leaves create a beautiful variegated effect. The green leaves have angular lobes and a neat, elegant appearance that would alone render the tree very attractive. The position this tree occupies on our lawn is somewhat sheltered, for it is not always and everywhere entirely hardy. Several curious varieties or closely allied forms of this maple come to us also from Japan. Some of them are mottled with white in odd fashion, while others bear pure snow-white leaves, which, unlike the white-leaved Acer negundo, endure summer heat and sun perfectly well. Unfortunately, these forms are still more difficult than Acer colchicum rubrum to propagate, and less hardy.

I should notice, also here, one or two Norway maples, new and rare, that are very charming on the lawn, and perfectly hardy, after the manner of all Norway maples. Acer platanoides Lorbergii is deeply cut as to its leaves, with the

young growth of a more or less reddish color. Acer platanoides Schweidlerii is the finest of these Norway maples, which are well represented on this lawn. The large striking leaves take on the most brilliant red in June, and in August and September the second growth glows richly amid the general green of the foliage. These trees are specially valuable, because they belong to the Norway maple species, in most senses, our best hardy shade-tree. Passing out on the main lawn, we note a single tree of very distinguished appearance, quite distinct from any thing we have observed before. It is golden catalpa. One of our most effective lawn trees is the catalpa. Broad, massive foliage, shadowy and most grand, characterizes the effect of this tree. It retains its foliage, moreover, late in fall, grows rapidly, and, by its large prominent appearance, impresses the eye from the most distant part of the lawn. Conceive all this effective foliage then painted with solid golden tints, and you have the golden catalpa (Catalpa syringæfolia aurea), which we note here on the lawn in question. The young growth is of course, most prominent, and in fall the richness of coloring is often very striking amid the widespread dullness of incipient leaf decay. Long clusters of white fragrant flowers are also fine in August, which is very late for sweet-scented flowers.

Aralia Japonica, of which there is a fine specimen is comparatively new and very interesting. It is a low tree, with spreading, umbrella-like head. The leaves are very large, curiously or deeply divided, and surmount branches and trunk of thorny or prickly habit. Altogether, it is a strange looking tree, and very hardy. It bears in fall, long, waving clusters of brownish purple fruit or seed vessels, which characterize the tree. The flower is, of course quite as effective as that of common Aralia spinosa, or devil's walking stick. It also affects soil of moderate fertility, having doubtless the failing of the family, viz.: Throwing up shoots or suckers from the roots. Deep, rich soil would, therefore, in all probability, aggravate this failing.

On a gentle slope near one side of the lawn, where the effect of a weeping tree may be most happily presented, is a new pendulous Japan cherry. We have long had small weeping cherries, round-headed, neat and very symmetrical, well fitted to perform an ornamental part on the lawn similar to that accomplished by the Portugal laurel, which is not hardy in our portion of the United States. The weeping cherry on this lawn is a different affair. It is tall, vigorous, and in every way like a common fruit-bearing cherry, except that it weeps. And it literally does weep. No deciduous tree, if we except the beech, does its weeping in more persistent, charming and original fashion than this cherry. The flowers, moreover, in early spring are very attractive, fairly covering the tree with small pink blossoms. Combining, as it does, so many ornamental qualities with a hardy and easily propagated nature, it forms unquestionably a lawn plant of much value. But come with me down by the stream; there are some interesting plants in that region. First, let me call your attention to a weeping deciduous cypress, (Taxodium distichum pendulum). It is quite new, although in most ways a simple southern cypress, with all that cypress's soft, feathery grace and elegant outline. The brownish red bark and erect stem of the southern cypress are also there, but added to these qualities is the great charm of weeping curves, persistent and distinctly drooping. This cypress may be now and then a little eccentric in habit, but usually curves soberly downward. Like its parent type, it enjoys moist soil—indeed, detests dry sandy quarters. In this section of the lawn there are several interesting alders, the natural haunts of which are moist places. Alnus firma, and one or two other Japanese alders are specially interesting, with their green, ball-like seed vessels and shining, elegant foliage at all seasons. I like to note these alders, for their presence here shows regard for a genus of plants too much neglected. Here also grow several interesting Japanese willows, Salix Sieboldii, and a curious dwarf, Salix cericea pendula.

The Ashes are seemingly out of favor with some lawn planters, yet we ought to see them more freely used; for prejudice in this case is entirely unfounded. They are hardy and not more prone to disease than other ornamental species, and they are all possessed of beauty as varied even as maples or elms. Many will recall the round, rich, symmetrical elegance of the walnut-leaved ash (Fraxinus juglandifolia), as well as the beauty of the more common American and European ash (F. Americana and F. Europea). Come with me, however, and look at this aucuba-leaved ash (F. Europea aucubæfolia). What a rich mottled gold dyes the leaf, and how attractive the roundish outline of its shining foliage. Near by is Fraxinus punctata, still more beautifully shaded with gold. But these comparatively old

variegated ashes are thrown into the shade almost by the curious tints and forms of two or three new varieties. Note this Fraxinus E. concavæfolia, with its white and rosy tints, marking strongly the young growth alike in summer and in fall, until, at a distance, one readily fancies the tree crowned with rich hued flowers. The entire young leaf, in this case, is more or less mottled with white and rose. Another ash, to which I want to draw attention, has light green, attractive foliage, but it is specially noteworthy for the curiously perfect curves of its downward drooping branches and leaves. This is Fraxinus scolopendrifolia. Then there is the Japan ash (F. elonza Japonica), distinguishable by its small leaves and drooping, graceful form. The Japan silver-leaved ash (F. Japonica argentea), is likewise represented by a good specimen. It is one of the best and most constant of variegated-leaved trees. The leaves are broadly edged with silvery white, which sometimes suffuses the entire leaf. There is also a golden and equally attractive variety of this Japan ash. The cut-leaved form of the ash is found in Fraxinus Japonica serratifolia, and we have the dwarf form of ashes illustrated by F. Europea atrovirens, a curious tree of almost diminutive habit, with dark-green curled leaves fairly hugging the stem. I like to dwell on the ashes, for they are neglected unjustly. My notes are, of course, very brief, and do but scant justice to the many fine ashes on this lawn.

Notwithstanding the beauty of the ashes, however, we turn with pleasant anticipations to look more closely at the oaks. Most original, perhaps in form, of all species of hardy or ornamental trees, as well as enduring and grand, we are all familiar with many effective kinds. Here we find, however, certain strange new forms. The planter seems to have appreciated the magnificent qualities of the oaks as lawn trees, and gathered together a notable collection of them. I will note briefly some of the most interesting.

Quercus pannonica, the Pannonian Oak, one of the finest of its species, is a grand tree that is not exactly new, but certainly very rare. It has great shining, deep-lobed leaves, and grows vigorously; a quality not always specially peculiar to the oak. This reminds me of a form of the pyramidal oak, a member of this group, Quercus pyramidalis cucullata. The pyramidal oak is, perhaps, the most rapid growing of oaks, and as it also has curious leaves curled down at the edges, you will readily perceive that in Quercus pyramidalis cucullata we have found an interesting tree. Cut-leaved forms attain their extreme development among oaks in Quercus heterophylla dissecta. The leaves are literally cut into mere shreds. There are several variegated-leaved varieties of oaks. The most familiar we notice on this lawn is Quercus pedunculata argentea, a beautiful and striking variety, with its dark green leaves variegated along the edges with silver. Passing from this simpler type, we notice about us various more complex developments of a similar coloring, which indeed needs only a little warming in tint to turn it into gold. Quercus tricolor variegata is more broadly and curiously streaked and spotted with red and white, becoming in fall tri-colored in appearance. Among the more warmly tinted leaves we have quercus aureo-viridis, with leaves broadly striped with yellow between the ribs. This variety, though fine, only leads us suitably to a specimen of the true golden oak, Quercus concordia, in some senses the noblest deciduous tree of our lawn. The peculiarity of this oak is, that it lacks the deep golden tint in June, is in fact distinctly greenish-gold, but in August a full, broad, rich gold suffuses the entire leaf, and, as the tree grows well for an oak, it is easy to conceive, even without seeing a specimen, what a grand effect it must make. This color seems to grow richer and richer as summer wanes and fall appears. It does not, in fact, gain much richness after August, but the increased contrast, afforded by surrounding fading tints, against its fresh healthy yellow becomes more and more marked. The deepest color is shown by the purple oak, Quercus nigricans. Quercus nigricans is more permanently brownish-violet throughout the summer, but, unfortunately, it is not very hardy in the climate of New York and northward. The weeping oak is represented on this lawn by a grand specimen. Many have doubtless heard of the excellence of this variety. But it is hardly likely that many are conversant with its peculiarly rapid growth for an oak. I have seen a young weeping oak grow five feet and over in one season, and that in poor soil. One curious fact about these golden variegated and weeping oaks is, that they belong very generally to European species. Possibly the variations of American kinds have not been noted with the same care by propagators, for the simple reason that, until recently, far too little consideration has

been accorded American lawn planting material.

Grand as the oaks are, we turn to the elms as capable of furnishing us lawn planting of equal if different importance. Here we have Roessel's golden elm (Ulmus campestris aurea), a small elm, as elms go, but bearing leaves solidly and beautifully suffused with yellow. It grows, of course, nearer the house, in accordance with its smaller habit. Ulmus viminalis is another slow growing elm. It is, however, distinct and elegant, with small rough leaves and numerous smooth, slender, twig-like branches, which are even somewhat pendulous, like those of the famous cut-leaved birch. Ulmus campestre Berardi is a beautiful miniature elm of slender growth and pyramidal habit, with deeply and delicately cut foliage. There is also a weeping variety of much rarity, called Ulmus rugosa pendula, with large rough leaves. The Siberian elm (Ulmus parviflora) is an old elm, perhaps, but quite new on our lawns. On the lawn in question, there is a fine specimen, with upright habit and dark, slightly curled small leaves, which remain green far into winter. I know, indeed, of hardly one true deciduous tree that stays green as late.

A great contrast with these smaller forms is afforded in the same genus by Ulmus fulva pendula. It stands in a prominent position, where it can be seen against a background of sky without injuring valuable views from the house. The position is selected, of course, opposite a slight break in the boundary of foliage. The leaves of this slippery elm are not unlike those of the common American elm, except that they are far more remarkably weeping and persistent in hanging on the branches late in fall. American elms, we know, are somewhat remarkable for their dull fading tints which appear, during some seasons, as early as mid-August. The special characteristic after all, of this weeping elm, is the way it throws about great far-reaching branches, which curve out and downward in a very grand fashion. Such a vigorous erratic growth, however, needs curbing, and the pruning knife must be used at times remorselessly. I have to designate just what weeping elm I mean, for there is another well known and choice variety of European origin and equally pendulous habit, called the Camperdown weeping elm, which is by no means rapid growing

(To be concluded.)

EDITORIAL NOTES.

TUBEROSE—"The Diamond."—No evil is without its compensation. In America cultivators of Tuberoses are often annoyed by the double kind reverting to its original single form. But

when it does this we may get seed, and from seed, new varieties. The Tuberose as it was, is all well enough for garden culture, but for growing under glass it is too tall. The "Pearl" was an advance in a better direction; and now we have still greater progress in the "Diamond," which is said to grow only from five to eight inches high, and yet produce as many flowers as the ordinary kind.

Nánz & Neuner are the fortunate introducers of this variety. They had a good find in the Double White Bouvardia, but we fancy a dwarf tuberose like this will be a far richer treasure.

CITY PARKS.—Philadelphia made a great mistake when she embraced over 2,000 acres in a single park,—which takes so much money that there is none left of any consequence for parks in other parts of her immense territory of 120 square miles. Even the small city squares are paragons of filth solely because after the great Fairmount Park, the taxpayers are not able to pay for more. There are thousands on thousands of Philadelphians who pay heavily for this park, who have never more than seen it, because it means a day's journey and a day's expenses. Boston, with its usual good sense, has been waiting to see what is best to be done, and will now profit by its sister's errors. They have nothing much to boast of as yet but the "Common," which after all is by no means to be despised as a pretty piece of garden work. Now the city is about to act. There are now waiting action before the City Councils orders for $600,000 for a park in West Roxbury; $100,000 for a marine park at City Point, South Boston; $200.000 for a park in Brighton; $300,000 for the Charles River Embankment, on the Back Bay toward Cambridge; $200,000 for the Muddy River improvement, and $50,000 for the East Boston Park.

WHAT DOES A GARDENER DO?—The following is a sketch taken of the Philadelphia City Councils by the Philadelphia *Ledger*. It is on the question of appropriation for the coming year:—

"When the items in reference to pumping were reached, the Chief Engineer stated that at the Fairmount works, in addition to two engineers at $900 each, nine assistant engineers at $675 each, two policemen at $675 each, and two watchmen at $675 each, there were employed a bricklayer, carpenter, stonemason, painter, rigger and gardener, with a helper for each on the day's pay-roll.

"Mr. Clay—What does the gardener do?

"Chief Engineer McFadden—He gardens.

"Mr. Clay—But what labor does he perform?

"Chief Engineer McFadden—What any other gardener does. I would suppose that every gentleman would know that.

"Mr. Clay—What could he do in the months of January and February, when snow is on the ground?

"Chief Engineer McFadden—He cleans the walks. If I had known that these questions were to be asked I should have had the gardener here to answer them.

"Mr. Clay—I would like to know specifically what this gardener does, and the Chief should answer, without attempting any evasion.

"Chief Engineer McFadden—I have been in the habit of meeting gentlemen, and I do not propose to be browbeaten by Mr. Clay.

"Mr. McCormick—I think it is the duty of the Chief to give all the information concerning the department asked of him. He has been asked a civil question and should give a civil answer. This thing has gone far enough.

"Chief Engineer McFadden—In an experience of nine years I have never had such questions put to me, but I am always willing to give all the information that a gentleman wants.

"Mr. McCully—Probably you never had as green a committee as this before?

"The Chief explained that the gardener took care of the grounds around and about the Fairmount works, and after some discussion as to whether it was not under the jurisdiction of the Park Commission, the committee adjourned."

It is clear Dr. McFadden will have to get a pig or two, or else a cow or some goats to look after or boots to black, or knives to clean, before the City Councils of Philadelphia will understand what a gardener has to do. No wonder an intelligent gardener feels mortified when he has to apply for a situation under these folks. To the really intelligent gardener January and February, though "the snow is on the ground," are among the most important and active months of the year. Even though the councilman's idea of a gardener seems to have gone no higher than a lawn mower, Dr. McFadden's retort that snow on the ground at least required a snow shoveler, was a perfectly civil answer.

DOES IVY INJURE BUILDINGS?—This question has been many times proposed and considered. In my monograph on "The Ivy," I have treated it at some length, and with the aid of evidence adduced in an important inquiry as to the effect of ivy on the fabric of English churches. My friend M. Sisley, of Lyons, informs me of neighbors of his who actually dread to plant ivy near the walls of their dwellings, from the apprehensions they entertain of consequent damp and injury to the structure. So long as such opinions

prevail it cannot be too often repeated that the attachment of ivy to walls is an advantage altogether. If the walls are damp before the ivy is planted, the damp will disappear as the ivy overspreads their surfaces. If the walls are dry to begin with, ivy will keep them so, by a double action; for should dampness occur through some accident, the ivy will suck out the moisture into its own substance, and in the event of driving rains, that occasionally act with force on walls, the imbrication of hard leafage will prevent the access of rain to the structure, and thus ivy is not only a remover, but a preventer of damp. As regards the integrity of the structure, however, the case is less clear. Fissures in walls clothed with ivy will sooner or later be discovered by the plant and filled up, and then mischief may be expected. When a shoot or root pushes through a fissure in a wall and is left undisturbed, its natural growth soon begins to tell upon the structure. As the little nut tree carried the millstone, so the slender shoot of ivy will by increase of girth begin to push against the sides of the fissure, with the certainty of increasing it, and the probability of bringing the wall down. But where the wall is sound it is exposed to no such danger. Ivy does not make fissures, however quick it may be to discover them where they already exist. It follows therefore that, as a rule, ivy may be regarded as defending against time and accident the walls that afford its support.—*Shirly Hibberd.*

Colors in the Flower Garden.—M. Buffon, a good many years ago, made a very interesting discovery, which is practically very useful, and very closely approaches in correctness the diagram principle in determining the colors which contrast. He discovered that if a wafer be placed on a white sheet of paper, and gazed steadily at for a few seconds, and then the eye removed to another part of the paper, a spectrum of the same size as the wafer and of its contrasting color is seen. The spectra are, however, rendered more distinct when the wafers are looked at on a dark ground, and the eye then directed to a white ground. This simple fact is the reason why black printing is more comfortably and easily read on a white ground than red, for red would have a contrasting green spectrum floating before the eye on a white ground; white being the contrast to black, the spectrum is prevented in such a combination. By this simple process, as well as by the aid of the diagram, the colors at the disposal of the flower gardener can be arranged according to the law of contrast. The following is a table of the colors and their contrasts:

Black.....White.	Green..Reddish Violet.
White.....Black.	Blue....Orange.
Red.....Green.	Indigo..Orange Yellow.
Orange.....Blue.	Violet..Bluish Green.
Yellow.....Indigo.	

Fern Rockery.—Ferns may fairly be characterized, looking at them in a general way, as rock plants; for there are very few indeed of the known species that cannot be successfully grown on or between the crevices of rocks. Hence, under cultivation, what is called rockery—little eminences, built up irregularly in a pile of any shape, and consisting of a conglomerated mass of earth and stones—affords the best means of arranging these plants, so as to display to the greatest advantage their elegant and graceful forms, and the best means also of accommodating the conditions of culture to their natural requirements. Of all the various methods, too, of growing ferns, that of growing them on "rockery" is perhaps the most popular. It is certainly a method which admits of the widest possible adoption; for, as in the most extensive grounds there is the widest scope for the creation of rockery on a large scale, so, on the other hand, there is no bit of garden so small, and no tiny strip of courtyard so limited, as to preclude altogether the possibility of introducing some little grouping together of rocks in association with at least some graceful ferny forms. Rockery may fill up the entire area of a large space, or it may be used conveniently to supplement any existing garden devoted to flowering plants; to fill up, in fact, in such a garden the damp and shady corners which lie beyond the borders of the flower world, because the brilliant inhabitants of that world cannot live without the genial influence of sunshine. But ferns court shady corners, rejoice in quiet gloom, and gladly occupy the places shunned by the gayer inhabitants of the sunny regions.—*The Fern World, by Francis George Heath.*

Renewing Box Edgings.—This subject is so well understood that scarcely anything needs to be written about it. Still as the present is a good time (if not done sooner) for renewing old, or making new box edgings to walks, etc., that perhaps a few notes thereon may do no harm. Box edgings may be made either in April, August, or September, or during November.

No edgings of any other kind can exceed the box in neatness and utility, although various experiments have been made with numerous other things. Box should not be planted in frosty weather; and this operation is best performed when the soil is in a nice workable condition, as when done during wet weather the the lines of box cannot be put in so straight nor the plants firmed so well as is desirable.

The ground where the edging is to be inserted should be neatly dug the depth of the spade, and all large stones taken out, as when they are allowed to remain they afterwards prove troublesome in the operation of opening the cut. This should then be hardened by running over it a heavy roller, then raked firm, and after that trodden down firmly and evenly with the feet. I need not say the site for the box should be perfectly even throughout as otherwise irregularities will appear when the edgings are finished. A garden-line will then be stretched along the prepared position and tightened to its utmost tension; then take out a cut or trench, the depth of which will be regulated by the height of the pieces of box to be inserted. This trench should be made in a slightly sloping manner, and it should be so managed that the pieces of box to be put in should not require a greater depth of cut than six or seven inches.

In preparing the pieces for planting it is well if a few rootlets can be secured to each, but the strong, woody roots must be cut off so that all may be somewhat even in size and height, and if possible of a fan shape. Thus, when all are in position they will appear of equal thickness and stature. In many cases roots cannot be got to the base of the portions to be inserted in the ground; but this need not be a source of discouragement, for cuttings of it root quickly and may be placed just in the same way as if rooted. It is well to have a considerable heap of prepared pieces, either rooted or otherwise, in readiness before the process of laying commences, as a smart hand will lay in a long stretch of edging in a short time; and it is better—as I said before—if by any possibility it can be accomplished, to finish the whole process in dry weather.

In laying in the plants from an inch and a half to two inches will be sufficient to leave exposed above the soil, unless for some special purpose a greater show of it is desirable at once. One sprig may just touch its neighbor and no more, which will be a sufficient thickness. In covering in the cut after planting, the clay should be firmly pressed in—not directly downwards, but in an oblique direction against the plants of box. When all is filled into the trench, the soil will need to be firmed evenly and well; and it is a good practice to repeat the firming process in a couple of days time, weather and all else permitting. All superfluous clay must then be cleanly removed, and the walk neatly re-covered with the gravel which had been put aside before planting, etc., commenced, taking care not to stifle the box plants during this operation.—*J. C., in Gardener's Record.*

GREENHOUSE AND HOUSE GARDENING.

SEASONABLE HINTS.

At this season the Calla will be growing vigorously, and will need water more abundantly. A saucer of water under the Calla is much relished by this plant. It is sub-aquatic in its nature. Other plants have saucers under them in order to keep the water from dripping on the floor; but water should not be allowed to stand in them. The Calla flower is liable to the attacks of green fly, as indeed are many plants which grow in windows. There are many remedies which gardeners use in greenhouses that are applicable in rooms. The best thing for the room gardener is to take the pots to a back kitchen, or, if not frosty, to the open air, lay the pots on their sides, and syringe with warm soapsuds.

Basket plants often suffer from too much or too little water. If from too little the leaves curl or fall, and the plants have a dried up appearance. If too much, they get yellow and drop off. As a rule, a basket in a warm room should be taken down once a week, and soaked

in a bucket of water, then drained and hung up again. Every day during the rest of the week a little water may be given the plants, and something put under to catch the drip. Some baskets have no provision for the escape of moisture. These are dangerous. Still some people manage to watch closely, and do well with them. Fern cases do best when given a little sun; for, though ferns are supposed to grow naturally in shady spots, it is because there is generally a more humid atmosphere there. If they can get this moisture, they rather like light.

Insects are apt to be troublesome in greenhouses—particularly red spider, green fly and mealy bug. A free use of the syringe is a good preventive. Tobacco smoke, in two or three light doses, is still the best thing for the green fly. The red spider, fortunately, shows his depredations more villianously than most insects—light yellow lines or spots marking almost at once the scenes of its depredations. If one has good eyes, the finger and thumb will keep him down, as a slight and rapid passing of the finger over the leaves easily crushes his little body. When he becomes an "army with banners" more scientific approaches must be made to give any show of success. It is not often, however, that one who thoroughly understands plants suffers much from insects. He or she seems to have an intuitive knowledge on the first appearance of an insect enemy that something is wrong, and the foe is subdued before it has time to leave an extensive progeny behind.

COMMUNICATIONS.

GARDEN SCIONS.

BY CANTAB, BOSTON, MASS.

X.

Pancratium ovatum.—This old acquaintance so long overlooked or forgotten has appeared anew, and certainly it is worthy of long and lasting respect. It is a tropical "lily," with large, handsome evergreen leaves, and in fall bears ample umbels of lovely pure white fragrant blossoms. Single bulbs in 5-inch pots blossom beautifully, but when a 12-inch pot or tubful (containing many roots) is in flower, no Eucharis ever grown by Howard can equal it in exquisite copiousness. Mr. Bennett, of Flatbush, has perhaps the finest lot of it in the country.

Sanvitalia procumbens as a window plant.—My neighbor, Mrs. Needham, has a plant of the double-flowering variety of this Mexican annual in her window, where it is growing like an Oxalis, Othonna or Lobelia—that is, its branchy shoots hang down all over the pots, and are thickly studded with its miniature sunflower-like blossoms. Its copiousness in the dullest season for flowers—early winter—commends it as a good window plant.

Asclepias curassavica is a serviceable greenhouse plant, a free grower and continuous bloomer. Its flowers—orange and scarlet—last a long time in good condition after being cut. At Mr. Brooks', at Milton, the other day, I saw several plants in the conservatory, and was informed that it was quite a favorite among cut flowers, the blossoms last so well they are used twice, that is, made up a second time when the vases are replenished. And besides blooming in the winter in the greenhouse, planted out in summer, it keeps in flower the season through.

Flowering of Eucharis Amazonica.—There is an extensive impression in horticultural circles that the Eucharis cannot be flowered satisfactorily in this country; now that idea is utterly erroneous. Mr. Tailby, of Wellesly, makes a remunerative specialty of growing Eucharis blooms for market. Mr. Such's plants, when in flower, are a sight to behold, and many instances in other commercial and private gardens testify that the Eucharis is as free-blooming in America as in Europe. We never have any trouble in getting two good flower-crops a year.

DRYING FLOWERS.

BY A. RESH, LANCASTER, PA.

The following note taken from the New York "*Independent*" of Oct. 9, 1879, may give the information which one of your correspondents desires: "*To Dry Flowers with Sand.*" There are many of our brilliant flowers—such as dahlias, pansies, pinks, geraniums, sweet williams, carnations, gladiolus, which may be preserved so as to retain their color for years. White flowers will not answer for this purpose, nor any like hyacinth or cactus. Take deep dishes, sufficient to allow the flowers to be covered an inch deep in sand. Procure the common white sand such as is used for scouring purposes; cover the bottom of the dish with a layer half an inch deep, and then lay in the flowers with their stems downward, holding them firmly in place, while you sprinkle more sand over them until all places between the petals are filled and the flowers

buried out of sight. Set in a dry, warm place. Some flowers will be dry in a week; others require more time. By this simple process flowers, ferns &c., are preserved in their proper shape, as well as color.—*Home and Farm.*

STEAM HEATING.

BY A. B. FOWLER, BOSTON, MASS.

Since our first attempts to bring the subject of steam heating in glass structures into general notice, I have looked in vain for some information as to what was being accomplished in the matter, but save in the case of Mr. Bochman I have not been able to find anything. This subject is of such great importance to those interested in the heating of greenhouses that it should not be allowed to smoulder, but be pushed in such a way as to bring all to a knowledge of the efficiency of steam for their use. I know the old heads still shake a negative at the bare mention of the idea. Dangerous, too dry, too complicated, but to each of these we who have proved it can truthfully ejaculate, Nonsense! The antipathy to steam results from want of knowledge rather than from any experience gained from a trial of it, and I do hope Mr. Bochman will push the matter all he can, making himself sure of hearty sympathy and good wishes at this end of the line, while you, kind editor, can help us strugglers after truth, through your esteemed magazine—which can be made the dispenser of knowledge in this particular, as it is in so many others—and we trust you will give us all the facts, both for and against steam, of which you may become possessed.

Regarding a few details I must disagree with Mr. Bochman, though in the main we prove of the same opinion, and perhaps it would be best to to canvass our differences, with a view of finding whose plan is the better.

In the letter to Mr. Peter Henderson, which appeared in your April issue, Mr. B. responds to some queries. His first reply as to the comparative recency of introduction of steam governing devices, &c., I heartily indorse, but his reasons for the failures in the attempts to utilize steam—if I rightly understand him—I cannot altogether concede. What I wish to know is this: Does he use the two and three inch pipes as radiating surfaces, or merely to convey his steam to his radiators of smaller pipe? And does he mean to condemn the use of small pipes as impracticable?

We use one-inch pipes altogether for radiating, but convey the steam to them thro' larger pipes, the size of which varies with the amount of surface we wish to supply, and its distance from the boiler.

Moreover, we use steam at a pressure of from three to five pounds. We return our condensation direct to the boiler without the intervention of steam traps or any other device, and I think the cases are very few where anything of the kind is necessary.

In a general way the more simple the apparatus and the less complications we use the better.

Regarding the larger pipes, their cost is nearly double that of the smaller, and if the latter can be made quite as effective, this is surely a saving.

But to the main question. I am merely vindicating our faith when I say that we have this season taken out our last remaining hot water pipes, replacing them by one-inch steam pipes, which would seem to prove that after several years of trial we have learned that the latter is in all ways the best.

FLORAL NOTES.

BY MRS. M. PLUMSTEAD, LYNN, MASS.

In GARDENER'S MONTHLY for April, Mr. Edward C. Haines mentioned having a double Abutilon of eight petals. I have an Abutilon, "John Hopkins," that had a double flower as large as an ordinary single Hollyhock. It had eleven petals, arranged in two rows overlapping each other. I hoped it would go to seed, but it did not. This week the same branch has another flower with the same number of petals. The stamens did not change, but were much larger than usual, as was the calyx. Have had several twin double Hollyhocks, the flowers opening back to back, on the same stem; also twin Pansies, the stem united until near the flower, then the flowers opening side by side, with the same markings.

A geranium P. L. Courier, with cherry scarlet flower, had one truss part clear scarlet, one flower two upper petals scarlet, three lower rose pink, another clear pink, another just one petal pink.

Ageratum John Douglass has shoots of variegated leaves, light green and yellow; rooted cuttings still retain the variegation; whether it will be permanent or not remains to be seen. I

found two plants of common barnyard grass, beautifully striped with white and pink. They were accidentally pulled up and perished. Thanks to C. E. Parnell of Queens, L. Island and others, who give us from time to time practical directions for cultivating different plants. Like "Oliver Twist" I am not satisfied but "want more."

WATERING PLANTS.

BY E. FRYER, DELAWARE, O.

In the May number of the MONTHLY "Irrigatum" makes some remarks on "watering plants by leaf absorption." There are few persons now who will disagree with him in regard to the conclusions reached by Boussingault, that plants absorb little or no moisture through their leaves from the atmosphere. But, is this assumed as a scientific reason for not giving plants a moist air to grow in? It may look well enough as theory, but the practical plant grower finds it necessary, yes, absolutely necessary, to surround certain classes of plants with a proper medium of moisture to keep them in healthy condition. We syringe plants, not with the intention of feeding them by watering the surface of the leaves, but for the cleansing which the operation affords and to stay the rapid waste of the fluids of the plants from within, a waste which increases with increase of temperature. The babe's mother or nurse washes or bathes her precious charge not in milk, but in water; not to feed it you will grant, but to cleanse it, and the operation is generally conceded to be healthful to the babe so treated.

It is only the excess of moisture that does the injury, and your correspondent gives a striking example of this in relating the experiment of his geranium and pomegranate, not only a drop of water falling often in one place, but a fragment of a fallen flower or any other decaying substance remaining on the leaf of a geranium that absorbs moisture would have the same effect—to produce decay.

The propagator who has to handle thousands of plants grown mostly from cuttings, knows well the necessity for the moisture he applies through his sprinkling pot; and also that the result of withholding that moisture would in a short time be a lot of dead leaves instead of growing plants.

Irrigatum is, however, right in his assertion that the under side of the leaves of plants transpire the most. This is true even of the leaves of unrooted cuttings. In propagating green cuttings, particularly those having large leaves, the upper surface may become apparently quite dry without injury to the cutting, but let the under surface become dry and remain so for an undue time, the death of the leaf and consequent loss of the cutting is certain. This dryness is avoided by sprinkling the upper surface of the leaves and all their surroundings, thus saving or storing in the stem and leaves of the cuttings the fluids which nature has placed there for the elaboration of the future plant.

In all cases a proper adjustment or alternation of moisture and dryness both of roots and leaves is necessary to keep plants in a healthy, growing condition. This every one soon finds out who by practice becomes accustomed to the general requirements of plants.

There are, indeed, many establishments where this general application of moisture to the leaves of growing plants is carried to excess. In such places there is always much loss of plants by "damping off," as it is called, and also considerable difficulty in raising seedlings. The excessive moisture produces fungus, which literally eats up everything of delicate nature. The too free use of the hose and force pump, particularly in winter and the colder days of the early spring months, is one fruitful source of this kind of mischief. In the proper season water power and hose are of incalculable service in plant growing on an extensive scale. Nevertheless it is an agent that must be used with judgment in order to reap the full benefit of it.

EDITORIAL NOTES.

BOUQUETS IN PARIS.—A correspondent of the *Garden* says:

"The Parisian bouquets are mostly far too large. Bunches of Roses 18 in. across in November were not only a great waste of floral beauty, but would also need a strong arm to carry them. Most of the French bouquets are also formed of one kind of flowers, and very seldom indeed is more than three varieties used in the same bouquet. Occasionally roses, Mignonette, and Pansies are used together, but not often.

"A very choice All Saints' Eve bouquet was purchased in the Madeleine Flower Market for five francs. It consisted wholly of Orange blossoms, mixed and fringed as was thought with small Orange leaves. On examination it was found that each single blossom was mounted on

a stem apparently of grass or small hard rush. No ties were used. These stems were sharp at the upper ends, and the single flowers were merely pushed on. The leaves were also found to be not Orange, but a variety of the Solanum Capsicastrum. These were no bad substitutes, and with daily sprinkling the bouquet kept fresh and sweet for a week. Surely it was exceptionally late or early for Orange blossoms, even in France.

"The flower girls on the Boulevards of Paris—who are not numerous—have an odd way of disposing of their simple bouquets. They suddenly present themselves before ladies or gentlemen likely to buy—the English and Americans having their chief attention—making a curtsey and with a 'Pardon, Madame' or 'Monsieur,' they insert their bouquet in dress or coat, and retreat. Making a short detour they present themselves with another bow for payment. To refuse the moderate sum demanded, or return the bouquet under such circumstances would be out of the question."

FIRE FROM STEAM PIPES.—A correspondent of the *Scientific American* has been making careful tests of the ability of steam pipes to fire woodwork in time. He finds that wood will char by contact with steam pipes heated between 500° and 612°, Fahr., but not below. When steam is superheated, wood readily takes fire.

BANANAS FROM SEED.—It is generally known that the ordinary Banana never produces seed. The fruit is the pulpy seed vessel,—but the seeds never perfect. Young plants are raised by offsets. The rare and extremely beautiful kind Musa ensete, does not sucker, and hence cannot be reproduced as the others are. On the other hand it produces seeds which grow easily, when seeds can be had, which, however, is not often, so that it is not often seen in collections. It is a grand plant for summer culture in the open air.

SWEET SCENTED BEGONIAS.—The following interesting scrap is from a work recently published in England by J. W. B. Wetham,—but it is proper to say that in American gardens we have at least two species of Begonias that are delightfully fragrant:

"The vegetation (Trinité, Island of Martinique; month, December) is of the most luxuriant description, as numerous waterfalls descend from both the mountain sides, here crossing the path in a broad stream, there trickling down in a slender thread, which loses itself in thick ferns and grasses. Each turn in the road presents some new combination of rock, tree, and falling water. You emerge from an avenue of bamboos to enter another fringed over by the fronds of magnificent tree ferns. The latter grow everywhere; you look up at their rough, fibrous stems, and you look down into their very hearts. The banks are covered with begonias and primulas; above these rise the dark green blades of plantains, or dark green heliconias, with their red and yellow flowers. Then come the great forest trees, such as the locust, the angelim, the bois violon (fiddle wood), the bois immortelle, &c. Of begonias I counted four varieties, one of which was sweet-scented. For some time I searched, wondering whence the delicious fragrance—very like that of the lily of the valley—came. I had never heard of a sweet-scented begonia, but at last I discovered one, and gathered a large bunch of the delicious blossoms. The flowers of this variety were very small and of a pink color, but the elephant-eared leaves were as large as those of much finer flowering species. I regret much that I did not endeavor to transplant some specimens, as I have since heard that a scented begonia is unknown."

HOW TO GROW CHRYSANTHEMUMS.—Now that the flowering season for these plants is with us, I beg to offer a few remarks upon their culture which may benefit some of your amateur readers.

Striking Cuttings.—Any ordinary garden soil may be used in which to strike cuttings, made light by the addition of silver sand and leaf-mould and Cocoa-nut fibre will be found very useful to mix with the soil. The cuttings should be taken about November or December, and inserted either singly in 2½-in. pots, or two in a 3-in. pot. The pots should be placed on ashes in a cold frame, and kept close till rooted, giving air only to prevent damping off. Short cuttings from 2 in. to 3 in. long will be found the best.

Potting.—When rooted, which will be about February or March, they should be potted singly into 6 in. pots. More care should now be taken in preparing the soil. A good compost may be made of three parts loam and one part decayed manure or leaf-mould, and enough silver sand to keep the whole porous. In potting, place an oyster shell in the bottom of the pot and place the crocks on it, or a little broken charcoal over the oyster shell make a capital drainage.

Pinching the Shoots.—If the plants are wanted for specimens, the shoots should be stopped when about 6 in. in length. The extreme point of the shoot only should be taken out, as by doing so a larger number of shoots are secured. It should be so managed that the plants are repotted about a fortnight after the stopping. The plants should be potted finally about the end of May or early in June, and the shoots should not be stopped after their final potting. The plants should now be placed on coal ashes, in order to keep worms

out of the pots, and strong stakes driven into the ground, and wire or string tied from stake to stake to secure the plants from strong winds. The plants will be greatly benefited by syringing the foliage during the hot weather. Chrysanthemums are very liable to the green fly, and they must then be dusted with tobacco powder, which will effectually kill the fly. Manure water should be given when the pots are full of roots. About the beginning of September the flower-buds will show themselves, and the plants should be carefully gone over and disbudded, *i.e.*, with a sharp knife take off all buds except the centre, or crown bud, on each shoot—as by doing this only good blooms are secured. The plants should be removed to the greenhouse or afforded some temporary shelter on the approach of frost.

Cuttings may be inserted in February or March, and will make good plants for ordinary purposes. They should be potted singly into 3-in. pots, and kept close till rooted, and then treated as above described. For these plants 8-in. pots will be found large enough for them to flower in, and by careful cultivation good blooms may be had.—*Gardening Illustrated.*

Deciduous Ferns, like the Leucostegias, when denuded of their fronds, do not, as a matter of course, require the soil being kept nearly so moist, yet it sometimes happens that with a knowledge of this they are allowed to get too dry at the roots, by which they are very much injured.—*T. Baines, in Garden.*

Gleichenias, if kept where there is a night temperature of 50° and a little warmer in the daytime, and plentifully supplied with moisture at the roots, will continue to make growth through the winter. Treatment like this is more applicable to plants that have been used for exhibition or other decorative purposes through the summer, and consequently not been able to make so much growth during the warmer season, as plants that have been managed in a way that would enable them to grow on uninterruptedly.—*Garden.*

History of Adiantum Farleyense.—It is generally supposed to be a sport from Adiantum scutum. I cannot at present remember whether I have ever written to raise the question in the *Journal of Horticulture* whether it is not really the barren form of Adiantum scutum. The original plant was found in a sugar plantation belonging to a Mr. Farley either in Jamaica or Barbadoes, I believe, but I am speaking without notes before me. I remember one of the first, if not the first, plant in England belonged to a cousin of mine, Mr. Miles at Marlborough, and I once saw decided fertile fronds on a plant which was identical with scutum. Several seedlings were raised by Messrs. Veitch, of Exeter, from spores of this or other fertile fronds, but they always reverted to scutum. Many ferns have both fertile and barren fronds on the same plants—take Blechnum boreale, for instance, and Pteris. What I wish to ask fern-growers is, have they ever seen any true plants of Adiantum Farleyense with spores on the back of the fronds, and have they ever seen barren fronds on Adiantum scutum?—*Cor. of Journal of Horticulture.*

Skeleton Leaves.—In skeletonizing leaves it is important to select leaves that are quite perfect, for if any of the fibres have been eaten away by insects when the leaves were on the tree, the skeletons will be unfit for grouping. The leaves should also be full grown and firm in texture, and for the leaves of the majority of plants June and July are the two months for taking them. Gather with the whole of the leaf-stalk, and immerse in a vessel of clear soft water, and allow them to remain in this until the soft part of the leaves divides readily from the fibrous matter. As some leaves require a longer time than others, they should be examined occasionally, and those sufficiently decomposed have the soft part removed. To do this nicely, time and patience are alike necessary; for if there is any undue haste they will be either torn or not thoroughly cleaned. The best way perhaps of separating the two parts is carefully rubbing the leaf between the thumb and finger in a vessel of clean water. When the skeleton is cleared of the soft matter wash it in clean water, and then lay it perfectly flat on a piece of paper rather porous in texture. In a general way, it is best to take each leaf out of the water with the piece of paper on which it is to remain until dry, as there is then not so much risk of its being injured in any way. When partly dry, they should be bleached in a weak solution of sulphuric acid. As the leaves differ so much in the strength of their fibres, and in the time required for bleaching them, no precise rules can be laid down for the quantity of water to be added to the acid, or the length of time the skeletons are to be immersed in it. A little practice and observation will enable the operator to arrive at correct conclusions upon

NEW AND RARE PLANTS.

ASPARAGUS PLUMOSUS.—In this month's magazine, a correspondent inquires whether this plant is yet in the country, and if so it is worth advertising. We quite agree with this, for a more beautiful introduction to culture has never been made. The advantages of this tribe are especially great to those who want plants for cutting, as is well known in the case of the common "Smilax" of the florists, which is indeed but a species of asparagus. The leaves are so hard that they wither very slowly. They are as valuable as ferns for lightening floral work, without their evanescent character.

This pretty plant has been recently brought to prominent attention by the enterprising firm of William Bull, of Chelsea, near London, from whom plants can be no doubt had in case it has not yet found its way to America.

The preceding illustration will give some idea of its graceful plumosè beauty.

ISOTOMA LONGIFLORA.—John G. Eisele says: "After several weeks' observation of the scarce plant, Isotoma longiflora, in its blooming state under our own treatment, we are satisfied that this plant promises to become a real treasure for the florist. The plants commenced to send up flowers about four weeks ago, delicious, fragrant, pure white, unique in form, and freely, always developing numerous new buds promising to bloom all the winter.

As you had the kindness to find for us the proper name, etc., of this plant, we think it will be interesting to you to know how it will turn out, and how it will become suitable for florists' use. We are satisfied that the flowers are as useful for designs as those of Stephanotis, which they somewhat resemble.

Easy culture and rapid growth in addition make this plant worthy to be recommended. If you think it worthy to mention in the GARDENER'S MONTHLY, we would beg you to put in a few words about it.

[We have already anticipated the suggestion of our correspondent. For a sweet, white, easily grown winter bloomer, we fancy few things will excel it in value.—Ed. G. M.]

BOUVARDIA ROSEA MULTIFLORA.—The common and very popular Bouvardia elegans occasionally produces branches of a bright pink. Messrs. Nanz & Neuner have succeeded in propagating this sport separately from the original, and have distributed it under the name of "Rosea multiflora." It makes a pleasing variety, and we suppose will be valued especially by those who are fond of cut flowers, as all of the Bouvardias remain so long after cutting without withering.

CEREUS MACROGENUS. — Under this name *L'Horticulture Belge* refers to a cactus which it compares to young flowers of the Victoria regia. It rarely flowers in European collections, but has recently favored M. Demoulin, of Mons, with its blossoms.

THE LOHENZ GAILLARDIA.—The Gaillardia, or "Blanket flower," has produced a variety for Mr. Lorenz, of Erfurt, which has no ray florets, and the disc florets are so deeply cut and the lobes expanded that in a drawing the head looks like one of a Bouvardia.

SCRAPS AND QUERIES.

ORNAMENTAL GRASS.—Jonathan Primrose writes: "Desirous of learning the botanical name of a grass that has been growing in our garden throughout the season, I have taken the liberty of sending you a few of its flower spikes to examine. Although much injured by frost, I hope you may be able to distinguish them. The roots were obtained of a gardener in Springfield, who considered it to be quite rare. It has attained a height of more than ten feet, and has dark green leaves, of which some are thirty inches long, and one and one-half inches wide in centre. In appearance it is very attractive. If you will please examine and answer through the columns of your valuable monthly, you will confer a great favor to one of its firmest friends."

[Pennisetum latifolium,—it may be in some lists under a synonym—Gymnothrix latifolium. —Ed. G. M.]

ASPARAGUS PLUMOSUS.—"Old Gardener," South Bend, Ind., asks: "Where can I obtain a plant of Asparagus plumosus? Do any of our Eastern commercial gardeners grow it? Will some one advertise the same if they possess it?"

COELOGYNE CRISTATA.—"G. C." asks: "Will some of the readers of the MONTHLY be so good as to give G. C. a few notes as to the culture of Coelogyne cristata and Dendrobium Cambridgeanum?"

PYRETHRUM POWDER.—"A. H.," Meadville, Pa., writes: "In an article 'on the best methods of destroying insects,' in the GARDENER'S MONTHLY for August, p. 238, it is stated Pyrethrum powder is death to insects and harmless to animals and plants. With regard to plants it seems to me the statement needs qualification, for its resinous qualities make it adhere to foliage so that it becomes at least a blemish to the leaves if nothing more; but it also, I think, interferes with some of the functions pertaining to foliage in vegetable economy. Please experiment and see if you do not find it so. Such is my experience."

FRUIT AND VEGETABLE GARDENING.

COMMUNICATIONS.

POT GROWN STRAWBERRY PLANTS.

BY CHAS. D. ZIMMERMAN, STATE FARM, LANCASTER, O.

It is unnecessary to tell the readers of the GARDENER'S MONTHLY the advantage of pot-grown plants, since the editor has given them for years. Still the bare statement of facts and experiences in different localities and soils often gives rise to new ideas.

In preparing ground for strawberries last spring, we marked off one acre to be planted with Glendale, but failing to procure plants enough to cover more than a quarter of it, the rest was kept in good cultivation to be ready as soon as runners could be had from those planted. Notwithstanding the severe drouth, we had several thousand well-rooted pot plants by the first week in August, which we planted while the thermometer stood quivering high in the nineties. They were thoroughly watered in the pots just before planting, but received no more after that, neither rain nor dew for weeks, nor were they shaded. The only loss was from white grub.

September 7th we received several hundred pot plants from Rochester, N. Y., which had suffered some on the way and had wilted so that many of the leaves had to be cut off. The thermometer recorded 102° in the shade and 130° in the sun the day they were planted. They were firmly planted and thoroughly watered by forming a basin of soil about each plant, large enough to hold half a gallon. About seventy-five pails of water to one hundred plants were applied, and after it had soaked away, dry earth was carefully drawn about the plants. They were also shaded for one day with the papers in which the plants were shipped. All the plants lived and are doing exceedingly well, apparently willing to give any amount of runners if they were permitted. Many who looked on smiled at the idea of planting strawberries during such a drouth and heat. They will laugh at the other end of the mouth when they eat strawberries from these plants. The plot is a high rolling piece of ground, composed of clay mixed with sand.

EDITORIAL NOTES.

WINTER NELIS PEAR.—This very fine old kind, which does not always succeed, seems always reliable at Rochester, where it is a favorite.

TENNESSEE HORTICULTURE.—Humboldt has organized a local horticultural society,—or rather a sort of market gardener's association for the encouragement of fruit and vegetable culture,—so the *Rural World* says. B. F. Transou is president, and J. E. Porter secretary.

DRIED APPLES.—In England, apples are dried whole. They seem to be first pared, and then placed under some pressure, as they are always much depressed. They look very pretty in the confectionary stores. A kind named Norfolk Beafing seems wholly used for the purpose. This kind is a wonderful keeper, and it seems of little use to dry a fruit that will keep a couple of years at any rate.

SHADING RIPENING GRAPES.—At a recent meeting of the Kentucky Horticultural Society, a report says:

"Col. Bennett H. Young's exhibit was confined

to grapes, which were just as fine as they can be produced. They were protected by bags made of paper or of netting during the growing and ripening season, and came out fresh, clean and luscious to behold. He showed plates of the following varieties: Noah, Elvira, Cynthiana, Lady, Janesville, Tallman, Uhland, Venango, Maxatawney, North Carolina, Concord, Lewis, Salem, Delaware, Mary Ann, Rogers' Hybrid, Perkins, Ives, Hertford Cottage, Diana, Martha, Rebecca, Eva, Worden Seedling, Brant, Rogers' Nos. 12 and 32, Merrimac, Belvidere, Norton's Virginia, and Creveling."

DRIED BANANAS.—We have long done a good business in dried peaches. The West Indies have now turned to drying bananas. They are said to be likely to compete with dried figs.

TOMATOES IN WINTER.—The excellent success of Mr. Paget, gardener to Senator Cameron, in forcing tomatoes in winter is finding imitators. In the vicinity of Boston last winter some growers were much encouraged.

SCALE INSECTS.—Various species of Scale are the chief pests of the California fruit grower. Whale oil soap, and also tobacco water, "heated to 130°," is reputed the great remedy. In this part of the world pure water heated to that degree is just as effective. It is a popular application on hard foliage and branches by gardeners on greenhouse plants,—but we should suppose in a large orchard it would be troublesome to get so much warm water.

FINE PEACHES.—From Mr. Lorin Blodgett we have the last week in October two magnificent Peaches, one white, one yellow, freestones, weighing together one pound. The flavor was truly delicious. We have tasted the rather new English white peach, Lord Palmerston, and though it ranks high, the white one of Mr. Blodgett is by far the superior. It is a general impression that late peaches are not profitable, because apples, pears, grapes and other things are in competition with them. This is not true of the Philadelphia market. The late peaches of Edwin Satterthwaite are among the most profitable of his crops. These late ones of Mr. Blodgett ought to be of great value.

IMPROVEMENT IN GARDEN LABELS.—Those of us who can remember the enormous amount of time garden labels took when made by pocket knives, have reason to be thankful to those who have set their ingenuity to work on machinery for the purpose. It was a vast step in advance even to make them, so as to entirely supersede the clumsy hand-made things. Those who have followed our advertising columns closely must have noted another great march forward in having these machine-made labels already painted. These seem small matters perhaps to some, but those who know regard these inventions as great blessings, and the inventors among the great benefactors of the age.

INSECTS IN CALIFORNIA.—Before 1875, we never heard of a worm in California fruit; in 1877, wormy apples began to appear in our market, and this year we have worms in pears, apples and peaches. They are not numerous, it is true but they excite apprehension for the future. So far as we have seen or heard, they do not lead to any distortion in the growth of the fruit, and they have not ruined the entire crop of any orchard as in many Eastern States. We were told ten years ago by a very competent observer, that the curculio had made its appearance in Tuolumne County; but, if the report was correct, the little pest did not find the climate or other circumstances favorable, and he is not known in the State. Our cherries and plums can be eaten safely with the eyes shut by those who adhere to a strictly vegetarian diet.—*Alta California.*

A LARGE BUNCH OF GRAPES.—The heaviest bunch of black grapes that has ever been grown, or, we should say, that has ever been recorded, is now on view at Mr. Noble's, Florist and Fruiterer, 22 South Frederick Street, Dublin. The variety is Gros Guillaume, and the grower, Mr. Roberts, gr. to the Countess of Charleville, Charleville Forest, Tullamore, King's Co. Its weight is 23 lb. 5 oz.; length, 24 inches; and width across the shoulders, 22½ inches; and in point of color, bloom, size of berries, and general finish, it is described as all that could be desired. It came off the same vine that produced the large bunches which Mr. Roberts exhibited some months ago at the Royal Horticultural Society of Ireland's Exhibition held in Dublin. It will be remembered that three of these bunches weighed collectively 45 lb. 6 oz., and the heaviest of the trio turned the scale at 16 lb. 6 oz. A portrait of this bunch was given in our number for January 27th. Up to this time the largest bunch of black grapes, of which we have any record, was Mr. Hunter of Lambton's famous Black Hamburgh, which weighed 21 lb. 12 oz., and, singularly enough, the bunch also made its first public appearance in Ireland, being shown at the International Fruit Show held at Belfast in August, 1874.

Mr. Hunter then beat the largest bunch of black Grapes on record, which was one of the same variety—Black Hamburgh—weighing 13 lb. 2 oz., and shown by himself the previous year at Manchester. Mr. Roberts' monster bunch now stands third on the list of heaviest bunches (irrespective of color), being 2 lb. 15 oz. less in weight than the bunch of Raisin de Calabre, 26 lb. 4 oz., shown by Mr. Curror at Edinburgh in September, 1875, and 2 lb. 5 oz. less than the White Nice, 25 lb. 15 oz., shown by Mr. Dickson, of Arkleton, at the same time and place.—*Gardener's Chronicle.*

NEW AND RARE PLANTS.

THE POCKLINGTON GRAPE.—A correspondent of the *Orange County Farmer* has been visiting the original vineyard of this grape,—and praises its sturdiness, and the size of its fruit. He does not seem impressed that it will equal some poorer growing kinds in flavor.

SIDNEY APPLE.—It is not often that we find a new apple that it seems desirable to name, because we do not forget that there are already two thousand in existence, and it is no use adding to this nomenclature unless there is a probability that the new variety will become a standard kind. It must be more than good to merit recognition from us.

This one seems to have superior claims. It is a very large apple, of fine appearance, and with that mixture of sour and sweet together, with just enough spiciness to give it character. The specimens sent were prematurely ripe through insect injury. On this account we do not feel warranted in giving a description from them, but are willing to accede to the request to name it. The fruit is from a natural tree on the grounds of Reverend Sidney Dyer, of Woodbury, New Jersey. There is a "Dyer" apple struggling with "Pomme Royale" for the right to the name. It will perhaps be best to call this the "Sidney." We should judge it would be in its best season about Christmas.

RAE QUINCE.—This variety seems growing in favor. Though not so vigorous as the Anger's, the fruit is larger than the Orange quince.

SCRAPS AND QUERIES.

BUSBY SECKEL PEAR.—"A.B." Lenape, Pa., says, "I send you by mail a Seckel Seedling Pear. Is it in quality equal to its parent? Mrs. Busby thinks it superior; Mr. Busby adds 'taking it all in all' he considers it greatly preferable, and is the very best of its season in cultivation. Your opinion if you please."

[This is an excellent Pear, distinguished from the parent seckel by its lighter color, and light rosy red instead of dark crimson red tint. To our taste it is hardly equal to Seckel, but "taking it all in all" which may mean a good many things of which one cannot judge from the fruit alone, it may have some qualities superior to its parent. It is certainly well worth watching.—ED. G. M.]

NATURAL HISTORY AND SCIENCE.

COMMUNICATIONS.

KALMIA POISONOUS TO SHEEP.

BY W. G. B., MEDIA, PA.

It is the general belief among Pennsylvania farmers that laurel leaves are poisonous, and that the instinct of sheep will not prevent them from browsing upon them.

Recently I noticed the owner of a wood in this borough carefully cutting and removing every laurel bush previous to turning in a flock of sheep. I remember reading about fifty-five years ago of the case of a family a few miles from Philadelphia being poisoned by eating pheasants which had eaten laurel leaves. An examination of the gizzards disclosed the cause of the trouble.

A statement of the case was published in one of the medical journals of Philadelphia, and the physicians said that no danger would have resulted from the use of these birds had the entrails been removed soon after they were killed, but when several days had elapsed the poison had thoroughly permeated the flesh.

I believe it is not generally known that the leaves of the Ailanthus are poisonous, yet I have

been assured by Spencer Neal, of Burlington, N. J., that he had three cows to die from eating them. In general it appears that the instinct of cattle prevents them from eating of these leaves, but in this case a rail was broken, the cows were reaching for corn in the adjacent field, the young ailanthus suckers were in their way, they ate them, and in a few hours were all dead.

[It seems proper to state that our doubts about the Kalmia being poisonous to sheep arises from the fact that chemical analysis has failed to find any poison in Kalmia leaves. Reflecting on this curious state of the case, it seemed to us probable that the character has followed the name. The European Laurel, Cerasus laurocerasus, is certainly poisonous to sheep. The poison, prussic acid, can be taken by the chemist from the leaves. Because the Kalmia has broad evergreen leaves, and because the Rhododendron and some other things have been called "laurel," they must needs be poisonous. This is of course, but a supposition. In the meantime if there is poison in the leaves of the Kalmia, we should like to know by what name this poison is known to chemists?—Ed. G. M.]

EARLY HISTORY OF SOME SQUASHES.

BY GEO. S. CONOVER, GENEVA, N. Y.

In the year 1668, two Catholic missionaries, Claude Troure and Francis de Salignac de Fenelon, of the society of the Sulpitians proceeded on their journey to the Iroquois villages, located on Quinté Bay, on the north side of Lake Ontario, and on the 28th of October they arrived at Kenté, the seat of their mission, located at the western extremity of the bay. On their arrival they were cordially welcomed by the Indians, and regaled with the best they had.

The feast consisted only of some Citrouilles (squashes) fricassed with grease and ——— which they found good; they said, "they are indeed excellent in this country, and cannot enter into comparison with those of Europe. It may even be said that it is wronging them to give them the name of Citrouilles. They are of a very great variety of shapes, and scarcely one has any resemblance to those in France. There are some so hard as to require a hatchet if you wish to split them before cooking. All have different names."

Having lately run across the above information in regard to the Hubbard (?) squash. I would send it to you.

[This is indeed an early notice of these squashes. John Bartram who visited these tribes more than half a century later, notes the great variety of squashes cultivated by them, but we do not remember that he refers to this hard shell kind which may, as suggested by our correspondent, be the parent of the Hubbard.—Ed. G. M.]

EDITORIAL NOTES.

ANTIGONON INSIGNE.—When we are asked to believe that color is given to flowers, expressly that they may be made attractive to insects, we may remember that color is not confined to flowers. Rocks and stones, sea-weeds, mushrooms and toad-stools vie with flowers in brilliancy of colors; and even in ordinary plants, stems and leaves, and even seeds themselves are often as highly colored as the gayest flower. In regard to colored leaves the gardener knows how abundant these are. Our greenhouses and conservatories are brilliant at all seasons, and even our flower beds owe as much to the leaves of coleuses and alternantheras, as to any insect-attracting flowers. Besides mere colored leaves, there is a class which has color in those organs which are intermediate between leaves and flowers—bracts—though after all these are usually more nearly leaves than flowers. It is only necessary to refer to the well-known Poinsetta, or "Christmas flower" of the Spaniards to explain what we mean. These large heads of scarlet petals are bracts, and, as we may see on examination, very little more than scarlet leaves.

The plant we now illustrate is somewhat of this class, and which has recently been introduced to cultivation by the enterprise of the well-known firm of Wm. Bull, of Chelsea, near London. Though an allied species, Antigonon leptopus, has been for the past few years an admired plant in American collections. The plant belongs to the Polygonaceæ, or, as we might say, in order to be more popularly understood by our readers, the Buckwheat family. Some of the true Polygonums have a climbing habit, as for instance Polygonum dumetorum, the "hedge-bind weed," which, though included by authors among "weeds and useless plants," is so beautiful as it twines over bushes, or runs over other plants in corn fields, that it would surely be cultivated as an ornamental if it were not so common. This plant Antigonon is an intermediate between the ordinary shrubby Polygonum and the twining

ANTIGONON INSIGNE.

forms. It has what the French neatly call a sarmentose habit, that is, branches not climbing, but yet too weak to support themselves very well. But, as we see by the engraving, after growing in this style for some time, they take a sudden notion to coil, and have indeed terminal tendrils. The end of the Pea leaf does just the same. It sends out small thread-like coils, which attaches to sticks—the Antigonon is one of the few plants which does the same by the ends of its branches. It would surprise some who see racemes of fine, rosy purple color to be told that they are but sepals—mere leaves in a transition state to flowers—and that the petals are comparatively minute, sitting like unassuming little birds in the middle of a magnificent nest. But a close examination soon convinces one. At the base of such raceme, a true leaf is depicted, and by comparison we see that the form of the bract-like sepal is very nearly the same. They are indeed so very little changed in character, even retaining the veins as in true leaves that only for the beautiful color, we should never think of them but as leaves.

Mr. Bull will receive the thanks of all plant lovers for introducing this very pretty plant. Antigonon leptopus is a very easily grown greenhouse plant, and no doubt this one will be equally tractable.

AUTUMN FLORA OF THE NEW JERSEY COAST.—Few persons, unfamiliar with the sea coast, can have any idea of the rare beauty of its vegetation in the autumn season of the year. All American scenery is rich with the colored foliage and gay autumn flowers, but the peculiar vegetation gives the salt marshes a remarkable character of its own. By the Camden and Atlantic railroad the coast can be reached in about two hours from Philadelphia. The management of the road is a very enlightened one, and, appreciating the fact that the road through the marshes has of course no way station, where the passenger may stop and examine these beauties critically, authorized Isaac C. Martindale, the eminent banker-botanist of Camden, to get up a party of the lovers of art and nature, and placed a special train at his disposal to carry his friends, and stop wherever he desired along the way. Although with but two days to work in, by dint of night work friend Martindale managed to fill ten car loads with the most intelligent people of Camden and Philadelphia, and it was a treat as rare as it was rich to be able to wander among glories such as these. To add to the obligations the public owe to him for his great effort, he wrote and had printed, at his own expense, a popular sketch of the botany of the route, so that each one with a copy in his hand knew what was to be looked for among the floral curiosities, and the prominent features of their histories.

The immense area of flat land known as the "salt marshes," are just like one huge carpet of every shade of color. The so-called Mosaic flower gardens pale before this grand garden work of nature. Mr. Martindale, in the sketch referred to, thus speaks of some of the plants which give a chief character to this gorgeous effect:

"From Absecom the whole character of the flora is changed, for there we enter the salt marsh which too has its peculiar growth of plants. In mid-summer the sea-Lavender, Statice Limonium, with its flesh colored flowers on branching stems is quite abundant, and quite conspicuous. The great mass which forms the "salt hay," is made up of several species of grasses, sedges and rushes, most of which are classed under that perplexing order to young students, Cyperaceæ. In the Autumn comes the most glorious sight of all in the coloring of the landscape by the abundant growth of Salicornia, commonly called Glasswort, Saltwort, Samphire or even "Pickle weed" which, so far as I know, is only a local appellation; the name Salicornia means salthorn, and was given by reason of the horn-like branches. Three species are found along the Alantic coast, which may be recognized by the following descriptions.

Salicornia ambigua, so named by the French botanist, Michaux, has numerous tufted stems from three to twelve inches long, either decumbent or ascending from a hard or rather woody base; this species clings very tightly to the soil by its creeping roots, and can only with difficulty be pulled; it sometimes turns lead color, but not often red with age, it is not so abundant or conspicuous as the others.

Salicornia herbacea is the most abundant species; it is usually quite branched, and becomes so highly colored as to be readily discernible a long distance away.

Salicornia Virginica is less branched, has thicker stems and differs somewhat in the arrangement of the flowers, which are quite inconspicuous; as the seeds approach maturity the specific distinctions are more readily perceived.

The last two species were described by Linnæus, the noted Swedish botanist: S. Virginica doubtless having been collected in Virginia by Clayton, also a noted botanist of that early day, while S. herbacea, which grows in Europe as well as America, was probably seen in its place of growth by Linnæus himself, but he never knew the beauty which it gives to the landscape as we are privileged to see it on the meadows

between Absecom and Atlantic City, where it is believed to reach its full perfection.

The impression made upon the mind of the true lover of nature, when first beholding this contrast and glow of color, cannot be written—only the artist's touch can portray its effect, and it requires a master hand at that; many have tried but failed to give the light and shade and play of color which to it belongs. It has thus far been reserved to Frederic D. B. Richards, a Philadelphia artist, to render ample justice to the scene; the work of his skill now adorns one of the windows on Chestnut street near Twelfth, and is the admiration of thousands of passers-by."

As a point of interest to the critical botanist it may be noted that Dr. Gray has found that the specimen on which Linnæus founded his Salicornia Virginica was nothing but Salicornia herbacea. Dr. Bigelow, of Boston, first identified the plant, and named it Salicornia mucronata, which is therefore the name under which the plant should be known which is called S. Virginica, in our text books. For this information we are indebted to Mr. Sereno Watson.

Varieties by Grafting.—A correspondent sends us the following from a daily paper in proof that there must be something in the common discussions about the influence of stock on the scion:

"The red and yellow banana are not different species. All bananas are naturally yellow, and are made red by grafting. The effect of the graft runs out in seven years, when we have sometimes bananas that are red, spotted and streaked with yellow. There are forty or fifty varieties of this fruit. The little guineos, or fig banana, is not over a finger long, and it is one of the finest species."

All we can say about it is that it does not do to get one's horticultural or scientific knowledge from the daily papers. The paragraph in question was evidently invented by Eli Perkins, or some similar newspaper wag, and other papers knowing no better, have been cheaply "sold" in copying it as their own. It reads like some of the "original" paragraphs we used to hear about that were "stolen by our exchanges," from some New York papers.

Fright in Animals.—Mr. Joseph Willcox, at a recent meeting of the Delaware County Institute, noted that animals were guided by a sense of smell as well as by sight. A deer was not as much frightened at a near view of a man, as a smell of him from afar. The sense of alarm in animals was affected by the ability to resist attacks. Horned animals for instance were usually less sensible to danger than those without. Those animals which are fleet of foot run at once from real or imaginary danger. An object in a state of quietude is as likely to create alarm as one in motion, because they instinctively know that carnivorous animals crouch when in search of prey. This habit of alarm at a crouching foe is instinctive in the horse, and it should therefore, from its earliest infancy, be taught to take courage at stationary objects, and be made familiar with them as well as with locomotives and other moving objects. The spirit of investigation should be freely encouraged in young horses. It is found by observation that the horse is much less afraid of an unfamiliar object when he sees his master go first toward it.

Worms.—In his recent work "on the formation of vegetable mould through the agency of worms," Mr. Darwin estimates that in England there are 57,767 worms to the acre. In America worms are very abundant in some localities, but in others they seem almost wanting. The number given by Mr. Darwin does not seem very large, being not one and a half to a square foot, and would hardly pay, at that rate, to dig for fish bait.

Chia.—We have already noticed in our magazine what Dr. Rothrock had discovered concerning the Chia plant of California. Dr. R. has communicated some further facts about it to the London *Gardener's Chronicle* which we reproduce here:

"During the summer of 1875," writes Dr. Rothrock, "my attention was called, while in Southern California, to a mealy preparation in popular use. On inquiry I found it was called 'Chia.' Further examination proved that it was furnished by the seeds of Salvia columbaria, Bentham. The seeds [nutlets] are collected, roasted, and ground in the native way, between two stones. It is used as food by mixing it with water, and enough sugar to suit the taste. It soon develops into a copious mucilaginous mass, several times the original bulk. The taste is somewhat suggestive of linseed meal. One soon acquires a fondness for it, and eats it rather in the way of a luxury than with any reference to the fact that it is exceedingly nutritious besides. It is in great demand among the knowing ones who have a desert to cross, or who expect to encounter a scarcity of water, and what there is of bad quality. By preparing it so thin that it can be used as a drink, it seems to assuage the thirst, to improve the taste of the water, and, in addition, to lessen the quantity of the..water taken, which in hot countries is often so excessive as to produce serious illness. As a remedy

it is invaluable, from its demulcent properties, in cases of gastro-intestinal disorders. It also holds a place among domestic remedies for the same purpose that flaxseed occasionally does with us—*i. e.*, a grain of the seed is placed in the eye (where it gives no pain), to form a mucilage by means of which a foreign body may be removed from the organ. I have found it of great service as a poultice. As a matter of archæological interest, it may be noted that quantities of this seed were found buried in graves several hundred years old. This proves that the use of the seed reaches back into the remote past. Indeed, I find several allusions to it in Bancroft's great work on the *Native Races of the Pacific States*. 'Chianpinoli' appears to have been made by the so-called Aztec races from corn which was roasted and ground as the chia was. Chia was, among the Nahua races of ancient Mexico, as regularly cultivated as corn, and often used in connection with it. Indeed, it was one of the many kinds of meal in constant use, and which appears to have gone then, as now, under the generic name of 'pinoli.'"

How Birds Eat Snakes.—It has long been a matter of popular belief that the great kingfisher was an enemy of the snake, perpetually warring upon the tribe in general, and never happier than when dining on serpent *au naturel*. It is not often, however, that even persons habitually residing in the bush have so good an opportunity as that afforded a few days since to Mr. Christian Westendorff, of Jindera, for observing the laughing jackass when in the act of bagging the game referred to. Mr. Westendorff was engaged with another man in clearing some land, and in the course of the day's operations it became necessary to shift a large log. For this purpose levers were applied to each end, and after some straining the log was rolled from its resting-place. The very moment it commenced to move a laughing jackass, which had hitherto been taking a deep but unobtrusive interest in the proceedings, made a swoop down from the limb of an adjacent tree and seized a large snake which had been lying under the log. The snake was gripped by the back of the neck (if snakes can be said to have necks) and borne away to the bird's previous perch, where the unfortunate reptile was banged against the bough until the body separated from the head and fell to the ground. The jackass then dropped the head, and, seizing the body, sailed away in triumph with his prize. Whether the bird had seen the snake go under the log and was watching for it to come forth again, or whether it knew by instinct that the reptile was there, is a question that may be left for naturalists to determine; but we are credibly informed that as soon as the log was shifted, and before Mr. Westerndorff or his companion had any idea of a snake being in their neighborhood, the jackass was down and made good his seizure.—*Albury Banner* (New South Wales).

LITERATURE, TRAVELS AND PERSONAL NOTES.

COMMUNICATIONS.

SOME NEW BOOKS FOR THE LOVERS OF RURAL LIFE.

BY PROF. T. C. GENTRY.

Day Dreams is the significant title of a neat little volume of poems from the pen of W. N. Lockington, Esq., late of San Francisco, but now a resident of Philadelphia. In it the author shows himself to be possessed of poetical talents of a very high order. Many of his pieces are beautiful pictures of word-painting, and almost faultless models of rhythmical art. As a whole, the work is unsurpassed by the writings of any of our minor poets, and in dignity of sentiment and force of expression will favorably compare with the best finished productions of many of the masters. The cheapness of the volume, $1.25 per copy, should bring it within reach of all. May its success be commensurate with the highest wishes of its author and publisher.

Bigelow's *Handbook of Punctuation*, a carefully prepared volume of 112 pages, has but recently appeared from the well-known publishing house of Lee & Shepard, of Boston. The reputation of the author should be a sufficient guarantee of the excellence of its merits, and doubtless is to the editorial profession and manufacturers of books generally; but to the unenlightened in

such matters, a word or two of commendation may not prove amiss. Look where we will we can hardly find a work of its size so replete with useful and valuable information. The rules laid down are simple, concise and authoritative, and such as are sanctioned by the best modern writers of our language. Authors and proof readers will find it an indispensable companion, and one that they cannot very well do without.

Nothing has come to my table lately, with such a thorough out-of-door flavor, so fresh and so spicy, and withal so calculated to please and entrance the reader, as *How We Went Bird's-Nesting*,—a small quarto publication, neatly printed and appropriately illustrated, and given to the reading world by the Messrs. D. Lothrop & Co., of Boston. The author, who by the way is a lady, shows wonderful powers of observation, and eminent fitness for this kind of literature. In her happiest frame of mind her style is inimitable, and bespeaks a love for the beautiful and pure in nature. So charming a book should grace every parlor table, and be found by the side of the writings of Burroughs, Ingersoll, Coues and others none the less popular and noted.

Messrs. Lee & Shepard, of Boston, have conferred a great favor upon ornithologists in issuing a work of vast usefulness and merit, under the title of *New England Bird Life*, from the manuscript of Winfrid A. Stearns, Esq., a member of the Nuttall Ornithological Club. While the author may have done his part of the labor reasonably well, yet the work, it must generally be conceded, owes its supreme importance to the profound wisdom, mature judgment and careful revisory powers of Dr. Coues, the most accomplished and talented of American writers on birds. Everywhere throughout its pages is manifest the impress of his superior mind, and the power of his ready and gifted pen. Part I. before us, which treats of the Oscines, covers some 324 pages, and in the amount of valuable and reliable information which it gives, is unsurpassed by any former publications on the avi-fauna of our Eastern States. Besides the brief, yet weighty and accurate descriptions of bird-life detailed, considerable space is devoted to other matters of an ornithological character, which seldom find their way into the books. These are arranged into four separate sections, and treat respectively on General Definitions, Preparation of Specimens for Study, The Subject of Faunal Areas and The Literature of New England Ornithology. Being neatly printed on fine paper, and having the monotony of its pages broken by a fair representation of beautiful cuts, altogether the book presents in its make-up and general appearance, one of the neatest and cheapest productions that has come before the public for some time, and reflects great credit upon all concerned. So important a work should be in the hands of all lovers of birds and admirers of good literature, and I confidently predict for it a wide circulation.

EDITORIAL NOTES.

JOHN JAY SMITH (See Frontispiece).—By the death of John Jay Smith, the GARDENER'S MONTHLY AND HORTICULTURIST mourns one of its own family. A. J. Downing, who, in connection with Luther Tucker, of Albany, projected the *Horticulturist*, edited it till 1852, when, in his efforts to save his fellow passengers at the burning of the "Henry Clay" on the Hudson river, he lost his own life. The magazine was then sold to Mr. Vick, and edited by Mr. Barry, and from them purchased and edited by John Jay Smith. It went after this to New York, where it was edited successively by Messrs. Mead, Woodward and Williams, till it finally became merged in the present publication. No periodical ever excited a greater love for rural pursuits than the *Horticulturist*; and, in its earlier years, hundreds dated their love of country life from their perusal of its pages. It was in this particular field that Mr. Smith excelled in editorial ability. Delegating to others more familiar with every-day gardening —as for instance Mr. Wm. Saunders, the present able chief of the experimental grounds at Washington—the more practical details, he reserved for himself the task of throwing around horticulture those intellectual charms which in all ages have commended it to the love of the good and the great.

But the important influence which he exerted on American horticulture was by no means confined to his editorial career. Long before the *Horticulturist* was conceived, down through over half a century to the last production of his pen, written on his death-bed, gardening was his constant theme. His knowledge of trees and plants, of garden art and rural taste, was singularly acute, and many of the most beautiful grounds, not only about Philadelphia, but in many distant parts of the country were made more lovely by the suggestions freely thrown out by his fertile

mind. The grounds around his beautiful residence in Germantown are a remarkable piece of successful landscape gardening. They are so arranged that one might wander about the place for an hour, and still continue to find objects of interest, and scarcely realize the fact when ultimately told that this charming spot with its beautiful lawn, belts of shrubbery, numerous rare trees and shrubs, fruit garden, vegetable garden, green-house, stables, etc., are all on a small city lot of less than two acres. "Ivy Lodge" is a singular triumph of garden art.

The love of gardening which he exhibited in almost every thought expressed, was evidently an inherited one. His ancestors, Smith and Logan, who were associated with William Penn in founding the great commonwealth of Pennsylvania, and in doing which they stamped on the whole country the great principles of civil and religious liberty, which have made it the admiration of the world, were also famous for their love of rural life. Perhaps in no respect does Mr. Smith's love of gardening more entitle his memory to a grateful remembrance than in the establishment of rural cemeteries. The city graveyard had become an abomination. The writer of this has seen several hundred weight of bones—skulls and limbs of those who have loved and been loved—gathered into obscure corners till sold to fertilizing companies by the digger of the new graves in the old grounds. All this he has seen close to the last resting place of the authoress of that touching work, the "Dairyman's Daughter," whose bones, for aught any one knows, may have been so used ere this. Mr. Smith had also had his sensibilities often touched by similar scenes. The burial of a loved one in such a place fixed his determination for reform. Not a flower bloomed in that barren, sectarian graveyard. No bird sang its innocent chant; no tree—no sign of any living thing appeared in this old-time desert of the dead, but the few blades of grass which persistently struggled to enforce a protest against this awful desecration of nature's love for us even after we are gone. But the sound from that grave, as the little coffin splashed into its muddy bed, was the knell of the whole system. Laurel Hill Cemetery was the result of that day's work, and it was opened for burials in October of 1836, and garden cemeteries in some form or another have become an essential part of American civilized communities. Few things gave Mr. Smith more pleasure than to dwell on this great victory over past folly. It was a severe struggle. The notion of the middle ages that a special sanctity could be given by ecclesiastical rites to a church graveyard had not wholly passed away. True, few people believed, as in the olden time, that evil spirits would trouble dead bodies any more in "unconsecrated" than in "consecrated" ground. But though the old thoughts had passed away, the old habits which these thoughts engendered yet remained, and it was irreligious to think of burial elsewhere. Mr. Smith was resolved. He issued a call for a meeting. It would have been a dampener to many to find but three persons respond to the call. But, nothing daunted, the meeting was organized. There was enough for a president, a secretary, and some one to vote on the resolutions; and the "unanimous" result of that meeting's work was duly reported in the city papers, and the nascent rural cemetery idea was presented to the public. High ecclesiastical dignitaries, who ardently opposed the project, are now among the tenants of this flowery land!

We have to confine our sketch to horticultural matters, or we would fill a whole number of our magazine with extremely interesting illustrations of his very useful life. His literary labors have been enormous. On our shelves the beautiful English translation from the French of Michaux's "Forest Trees in America," and an edition of McMahon's "American Gardener," bear his name as editor on their title pages.

The remarkable activity of Mr. Smith's mind seems to have been in a measure inherited. His grandfather, John Smith, who married Chief Justice Logan's daughter, established the first insurance company in America. The first line of packet ships which made regular trips to England was also his work. He called the first meeting which resulted in the famous Pennsylvania Hospital, and was its secretary for many years. His grandson, John Jay Smith, was of precisely the same mould. He was the secretary of the company which introduced the famous line of daily Conestoga wagons from Philadelphia to Pittsburg,—and was among the early originators of the Academy of Natural Sciences. Logan, the founder of the famous Loganian Library, of Philadelphia, willed it to the city, conditional that any of his descendants, educated in the classics, should always have the preference for the office of Librarian. Mr. Smith filled this *quasi* hereditary office for many years to the entire satisfaction of the community. The meeting

which resulted in forming the Girard Life Insurance Company, was called by him,—and the Germantown Horticultural Society grew out of his active brain and generous energy.

But it would be impossible to name, in a short notice like this, a tithe of good works now successfully accomplished or still working on in a useful way, which originated with him. During the last few years of his life he earnestly endeavored to promote the introduction of trees and plants of commercial value—notably the cork oak and the mushroom. One of the last letters which the editor of the *Gardener's Monthly* received from him, was overflowing with enthusiasm at the success of some one whom he had encouraged to try the artificial culture of the delicious esculent mentioned, on a large scale.

It is almost inconceivable that one whose eighty-three years of life was one of such eminent activity and usefulness, should have passed at least forty years in physical pain and suffering. On one occasion his life was only saved by a surgical operation, of a heroic sort. Truly the race is not always to the swift, nor the battle to the strong! The man who lives the longest is the one who loves best the work he was sent into the world to do. Even though the active man die young in years, his work is his life. In this light John Jay Smith's has gone beyond Methuselah's. A full detailed account of his life would be admirable reading for young men. In this connection it may not be out of place to note that his own descendants seem proud to walk in the horticultural traditions of the family. Albanus L. Smith, grandson of John Jay Smith, has assumed the task of carrying out the plans of his grandfather in reference to the new West Laurel Hill Cemetery.

ERNST BENARY.—The well known Seedsman, of Erfurt, Germany, calls attention to the gross typographical error in his Fly Leaf advertisement of our October number. The printer has made him price the seeds of Areca Baueri Seaforthia robusta at "£1, 10s. per 100;" whereas, his copy was plainly written 6s. 6d. per 100. The price per 1000 being only 60 Shillings, it is hoped the discrepancy was so manifest as to do comparatively little damage. The publisher desires us to apologise to Mr. Benary in his behalf, and we do so with pleasure, in this public manner. Although we do not insert advertising notices in the reading pages of our Magazine, yet an error like this beyond recall, entitles the aggrieved party to the most conspicuous amendment in our power.

PECULIARITIES OF TREE PEDDLERS.—While the West complains about the rascality of the "New England" or "New York" peddler, the East is swarming with "men from Ohio." Many of the counties bordering on Philadelphia are overrun with "Ohio men." Most of these, we have reason to believe, buy the refuse of home nurseries, and they go off as "Ohio" trees.

MONTREAL HORTICULTURAL SOCIETY.—Sixth annual report from Henry S. Evans, Secretary. This is a genuine horticultural report, as distinguished from mere Pomology. Trees and flowers, as well as fruits, receive a large share of attention. Forestry and timber in general has also received the serious thought of the society. There are several very instructive chapters on these subjects.

HISTORY OF THE ONION.—The Onion, Allium Cepa, is in the Hebrew *betsal*, plural *betsalim*, the rudimentary sense of which word appears to be bulb. The excellence of the Egyptian Onions was in the primeval times proverbial, and they seem never to have lost their character. Hasselquist, a hundred years ago, describes them as distinguished for their sweetness and softness, and adds that in no country in the world can this vegetable be eaten with more satisfaction and with less hesitation than in Egypt. The native country was probably some part of south-western Asia. Homer mentions the Onion under the name of κρόμμυον. Served with honey, it forms the repast of Nestor in the beautiful episode in *Iliad* xi. It is mentioned also in the *Odyssey*, xix. 233. Singular to say, though obviously a common article of food in ancient Egypt—so common as to be within reach of the enslaved Israelites—some kind of superstitious reverence was connected with the Onion, giving occasion for the statement in some of the old Greek and Roman authors, that the Egyptians actually worshipped this bulb. Lucian and Juvenal both say so. Possibly the true idea is, that the Onion was dedicated to some deity, or that it symbolized some religious idea, or it may simply have held a position similar to that of the Leek in Wales at the present day. The refusal to eat it on the part of the priests, as described by Plutarch, rested probably on the same ground as that of the Brahmins of India to touch food which they consider vulgar, or it may be that there was some confusion of the Onion with the great round

bulb of the medicinal Squill, an inhabitant of the sandy shores of the Mediterranean, those of Egypt included. In the unbotanical times to which these superstitious and curious old facts belong, nothing would be more natural than for the Onion and the Squill to be confounded, and for their respective reputations to become entangled. To this day the common Ornithogalum of the cottage-windows is familiarly termed the "flowering-Onion."

Garlic, the last of the three ancient Alliaceæ, is in the Hebrew plural, in the verse quoted, *humim*. This word denotes not the Allium sativum, but the Eschalot, Allium ascalonicum, the σκόροδον of the Greeks, and the Allium of the Romans.—*Leo Grindon, in Gardener's Chronicle.*

THE TRAILING ARBUTUS.

After the snows their fleecy covers
Lift from the ground,
Thy prostrate stems the year discovers
When buds abound.

With lips grown warm at their own pressure,
Fair April hies
To leave first kisses on my treasure,
His boyish prize;

As waiting lips are forced asunder
In loving much,
Thy petals open with glad wonder
At April's touch.

Where, in thine own New England twining,
O! flower of mine,
I hold thy clusters fast, consigning
My face to thine.

Past Aprils come in cruel fashion
Through empty years,
Thy scented blossom breathes a passion
That brings the tears.
—*A. R. Grote, in the Globe.*

MR. GEO. ELLWANGER.—This distinguished nurseryman, and excellent gentleman, has been summering in Germany, his native land.

SCRAPS AND QUERIES.

VIRGILIA.—"P. E." says: "I notice you spell this plant Virgilia. It is now clearly demonstrated that the poet's name was Vergil, and, as I suppose our plant was named in his honor, it should be written Vergilia."

[We did not know it was so "clearly demonstrated." The matter has been gone over long before "P. E." was born. There appears to have been some reason for the choice of e for i, but no more than for the same in Diana, Minerva, and numberless Latin words. But the world has not adopted "Deana" or "Menerva," nor do we see why "Vergilia" should be the single exception.

In relation to "our plant," however, the matter is soon settled. It was a mistake to refer it to that genus. Its right name is Cladastris tinctoria.—ED. G M.]

ORTHOGRAPHY OF PAPAW.—"B." says: "You should not allow Jacques or any body else to misspell Papaw in the GARDENER'S MONTHLY. It is a disgrace to the Michiganders to have a town's name misspelt as they have."

[We suppose, as our correspondent does, that the Michigan town was named from this fruit. But we do not know why, and therefore take the liberty of asking is this the fact? And if not, what is the derivation of the name with its equivocal spelling?—ED.]

HORTICULTURAL SOCIETIES.

COMMUNICATIONS.

AMERICAN POMOLOGICAL SOCIETY.

Address of Pres. M. P. Wilder, at Boston, Mass., Sept 14, 15, 16, 1881.

(Concluded from page 351.)

AGRICULTURAL, HORTICULTURAL AND POMOLOGICAL SOCIETIES.

A subject of great importance, which I wish to bring before the Society, is the position of Horticultural Societies, Agricultural Colleges, and similar institutions with respect to it.

When I reflect on the advantages which have been derived from the publications of our Society I regret that their distribution has necessarily been confined to its members. Our funds have all been acquired from fees of membership or by donations, and have not permitted of a more extended distribution. Some copies have, however, been sent to the libraries of Congress, the Department of Agriculture, and a few other similar institutions, but our volumes should have a place in the libraries of all our State Agricul-

tural, Horticultural and Pomological Societies. I submit, therefore, for your consideration the question whether these and similar institutions might not be placed on the same footing as life or biennial members. To provide for a larger edition and more extensive distribution of our proceedings, I have the pleasure to state that I have procured the generous donation for this purpose, from the time-honored Massachusetts Society for Promoting Agriculture, of five hundred dollars, to which I have the prospect of adding one thousand dollars or more by gift from Boston friends to our fund.

NECROLOGY.

While we rejoice in the prosperity of our Society and the presence of so many old friends who have been spared to this day, and extend fraternal greetings to all who have come up to aid us in the promotion of our noble work, we have to mourn the loss of several who held official relations with us, and of others who have been devoted to our cause.

Robert Buist, Vice President for Pennsylvania, died at his residence in Philadelphia, in the summer of 1880, in a good old age. Few men in this country have done so much as Mr. Buist to advance and extend the taste for horticulture and kindred arts. For a long course of years he stood at the head of our florists and seedsmen, as a connecting link between the horticulturist of this and earlier generations. He took a deep interest in the dissemination of good fruits, and was present at many of our meetings. In all his dealings he sustained a character for honor and fairness; and many of the most distinguished collections in our land may trace their beginning, and much of their excellence, to his enterprise and advice. But he has done more than to raise fine trees and plants; he has trained up and sent forth throughout our land more young men to be an honor to horticulture than perhaps any other person in his profession.

Charles Cotnam Hamilton, M. D., Vice President for our Society in Nova Scotia, died at his residence in Canard, Kings County, in the summer of 1880. Dr. Hamilton was a genial, gentle and Christian man, and to no one in Nova Scotia are the public more indebted than to him for the progress of agriculture, horticulture, the medical art, or whatever tends to promote the welfare of mankind. He was a man of progressive ideas, and the frequent exhibitions of his knowledge and skill gave strong evidence of natural greatness, which won for him the respect and love of all who knew him. He was President of the Fruit Growers' Association for Nova Scotia from the day of its formation to his death. He has attended the sessions of our Society in various portions of our country, made many valuable reports, and his death was caused by exhaustion from visiting agricultural and horticultural exhibitions, which he had done for many successive weeks. He was President of the Provincial Medical Board at the time of his death, and held many other offices of honor and trust. He was born October 13th, 1813, graduated at the University of Pennsylvania in 1834, and continued in active practice as a physician over forty-six years.

Bernard S. Fox, Vice President of our Society for the State of California, died about the 20th of last July. He had visited several of our great cities on his way to Europe, but, failing in health, was returning home, but only reached Council Bluffs, where his life closed. He was a pioneer horticulturist and nurseryman, and known in all parts of his State for his energy and enterprise. He commenced the nursery business in San Jose, possessing considerable land, which rose in value and made him one of the richest men in his line of business. He was an Irishman by birth, and came out to Messrs. Hovey & Co., of Boston, in 1848; after a few years he emigrated to California. For many years he had been much engaged in the production of new varieties from the pear by seed. Prominent among these are the P. Barry, B. S. Fox, and Col. Wilder. In a letter which Mr. Fox wrote to the editor of the *Rural Press*, before he started on his late journey, he stated: "You are well aware that the list of pears is already large, and unless something extremely good is offered there is no use adding to it. But after many years of trial here and elsewhere, I claim now that, at their respective times of ripening, there are no large pears superior to them in size, flavor and good shipping qualities." Mr. Fox's death is a great loss to California horticulture, which he has promoted in many ways, and many of us at the East will remember him on his late visit, when he was full of hope and the prospects of long life.

Dr. William M. Howsley, Chairman of our Fruit Committee many years, for Kansas, died March 7th, 1880, in the eighty-second year of his age. Few men in our country have been more desirous of promoting the welfare of our Society

and the progress of Pomology in his own and the new States of the West. His reports as Chairman of our Fruit Committee for Kansas, attest to the value of his labors, especially on the classification of our fruits, and the nomenclature of the apple. He was born in Kentucky, and in his earlier years learned a trade, in accordance with the wishes of his father, but he sought for mental culture. He studied for the medical profession under the celebrated Dr. Rush, received his diploma, and practiced his profession in his native county for thirty years. His love of nature led him early to the cultivation of fruits, and he established a nursery in Kentucky in 1836, and ever since has been one of the ardent promoters of American Pomology. Well was it said of him, "that few men have ever held grander conceptions of the part horticulture is destined to play in promoting the civilization of the human race. To his mind, the production of improved fruits, more beautiful than flowers and attractive lawns, were only the promise of a healthier race, of happier homes, and a higher and nobler civilization."

Beautifully, indeed, did he utter these sentiments in his speech at our banquet eight years ago, in this city, when he expressed "the hope that when you and I, sir, shall have finished our work on earth (which will not be long), and these hoary locks of ours are consigned to the tomb, the friends of American Pomology, from the Atlantic to the Pacific, may clasp hands in brotherly kindness over our final resting-place."

M. B. Bateham, Chairman of our Fruit Committee for Ohio, died after a lingering illness at his home in Painesville, Ohio, August 5th, 1880. He was for nearly half a century a constant laborer in the promotion of agricultural, horticultural and kindred pursuits; especially was he interested in horticulture, a taste for which was imbibed in youth, and to which he devoted unremittingly his after-life. He came to Rochester, N. Y., in 1825; there he commenced the seed business in 1833, in connection with rural pursuits in that city. He soon became a writer for the press, and was for five years editor of the old *Genesee Farmer*. Here he became acquainted with our friends Ellwanger and Barry more than forty years ago, which gave him a love for pomological research, which continued until his death. He removed to Ohio in 1845, and established the *Ohio Cultivator*, which afterwards became the *Ohio Farmer*. He was one of the founders, and for a long time Secretary of the Ohio Pomological Society. He was Secretary of the Ohio State Board of Agriculture for some time, and was for many years, and at the time of his death, Chairman of our Fruit Committee for the State of Ohio. Mr. Bateman had traveled much both at home and in Europe. He was a close and accurate observer of all matters pertaining to the science of the soil; especially was he interested in the progress and welfare of the American Pomological Society, at whose last meeting in Rochester he took an active part. He was born in England, September 13th, 1813.

Among others who have deceased since our last session, although not holding official relations with us, are the following, whom I think it proper to allude to as friends of our cause:

William Griffith, a Life Member, died at North East Pennsylvania, May 23d, 1881, aged sixty-six years. He came to this place in 1840, and when the grape interest was beginning to assume increased attention he planted a large vineyard and built a wine cellar. He gave special attention to the cultivation of the Iona grape, and was identified with everything in his region and the Lake Shore that had for its promotion the cultivation of the vine. He was President of the Grape Growers' Society, of Pennsylvania, and was appointed to represent that association at the World's Exhibition at Paris in 1867. He was much esteemed, and was connected with everything that pertained to the improvement, embellishment and prosperity of the town where he died.

William Lawton, of New Rochelle, N. Y., a Life Member, died in New Rochelle April 27th, 1881, aged eighty-five years, eleven months and twenty-seven days. He was a gentleman of great energy, enterprise and perseverance; was early interested in the proceedings of the American Pomological Society, in the culture of fruits, and was very extensively known as the introducer of the Lawton Blackberry, which was disseminated largely, and will perpetuate his name in the pomology of our time. He was a sergeant major of artillery in the war of 1812, when he was nineteen years of age; when twenty-two, he became a stock exchange broker. He helped to form the first Brokers' Board in New York, and, although retiring from business in 1867, he still retained his connection with the Stock Board, and was probably the only survivor of the original members. He was a member of the New England Historic Genealogical Society, and was present at its meeting one year ago, and greatly interested us by the recital of some important reminiscences of his life.

Aaron Erickson, of Rochester, N. Y., a Life Member, died at the advanced age of about eighty years. He came to that city a poor young man, a machinist. From that he became one of the most extensive wool merchants, having branches or agents of his house in our principal cities. He then became a banker, and in all these relations, and under all circumstances, was successful, honorable and high-minded. By study, travel and observation, he acquired information on literary and scientific subjects above the average of merchants. Horticulture always claimed much of his leisure time, in which he endeavored to keep up with the progress of the

age. He kept up a good collection of our best hardy fruits, and was especially successful in his culture of the foreign grape, to which he gave special attention. Mr. Erickson took a deep interest in the growth and embellishment of Rochester, and, as a man, he was genial, generous, hospitable; in every sense of the word a true gentleman.

THE GREAT FUTURE.

In contemplating the rapid progress of American Pomology, its influence in promoting the health and happiness of our people, its importance as a source of revenue to our nation, and the agency which our Society has had in promoting its advancement, I am deeply impressed with the obligation which rests upon us to sustain our organization in all sections of our country. Few are aware of the time, money and persistent efforts which have been spent in the prosecution of our cause. With many of us it has been a life-work of patient and persevering investigation, the results of which have been of lasting benefit to mankind. But not until we look back to the time when this Society was established, and compare that period with the present, can we estimate the advantages which have arisen therefrom.

But who can form any adequate conception of the vast proportions and value of the fruit culture of our country, when it shall have been opened up to its full extent by our various Pacific railroads with their connections, and other means of transit—when the Northern Pacific, soon to reach our western coast—when Washington Territory and Oregon, with a climate in many places varying only one degree in eleven years from that of Paris, with millions of acres of fruit lands, and even in Southern Alaska, Sitka and other places where the mercury, close as they are to the Arctic circle, has only fallen four times, in forty years, below zero; where the average of winter temperature is above the freezing point, and for the entire year forty-three degrees; where ice and snow are exceptions; where the tropic waters of the Japan gulf stream, crossing the Pacific, softens the climate so as to make it similar to that of Kentucky, and where they can plant earlier than we can at Boston.

Nor should we omit the possibilities for fruit culture even in the colder States of our Northern borders, like Idaho, Montana, Minnesota and Dakota, with rivers and valleys of great extent and astonishing fertility, the latter especially favorable, with her one hundred million acres of tillable land, sufficient for half a million of large farms, and on which a hundred thousand emigrants have settled in one year. Hardy varieties of fruits will be produced in these regions, and on the upper waters of the Columbia, where now they grow spontaneously, and where along their rivers and streams the wild grape abounds; and it is thought that that portion of the country north-west of the Rocky Mountains will be peculiarly favorable for the growth of the apple.

And we turn now to the Southern Pacific road, which is opening upon us the vast regions of New Mexico, Southern Colorado, Arizona, and the valleys of the Rio Grande and El Paso, already renowned for their grapes and wild fruits, and whose fertile lands yield abundantly—where the climate is as mild as Italy, and where, in some instances, the capabilities for fruit culture are of great promise.

And to these great resources we may add those of Texas, greater in territory than all the New England and the Middle States, opening up another avenue by this road for the transport of its products, and affording great facilities for fruit culture. And, to crown all, we have imperial California, whose products, by the facilities of transportation, are sent to all parts of our Union, whose capacity for fruit culture is marvellous, whose wines are exported by cargoes to Europe, to be muddled over and returned for consumption by those who prefer "far-fetched and dear-bought" to the products of our pristine soils.

When I reflect on the possibilities of the great future, our vast territory, our fertile virgin soil, our amazing agricultural, mineral and pomological resources, our ever-increasing population, prosperity and power, in all of which fruit culture will have its full share, I fully concur in the opinions of Mr. Gladstone, when he says: "The American Union has territory fitted to be the base of the largest continuous empire ever established by man." And I would say with him, also, "I am proud of America, and her physical capacity." Glorious words, indeed! but not more glorious than prophetic of the great future of American civilization!

This advance may not arrive till long after he who addresses you shall be slumbering in the dust, but that it will come is as certain, we believe, as that light illumines the world, and to doubt this would be to doubt the continued improvement and elevation of our race, or that Providence has in store the millennial blessings which He has promised to mankind.

CONCLUSION.

In conclusion, gentlemen, let me express again the great gratification that your presence affords me, here in old Boston, here at my old home, where, ere long, I shall cast off the threadbare covering of humanity, where this worn-out frame and this tired brain shall rest under the shadow of mine own trees in yonder cemetery. But while my life is spared, my earnest prayer will be for the perpetuation of our Society and the diffusion of its blessings to mankind. One after another of our friends will fall by the wayside, and ere long all of its founders will have joined those who have gone to that better land where fruits are immortal and whose harvests are eternal. But the progress of American Pomology, rural economy, domestic comfort and cultivated taste, which has been developed by our association, will continue its glorious march until all shall realize that fruits are one of the most beautiful emblems of Divine beneficence—one of the most perfect and useful gifts of God to man.

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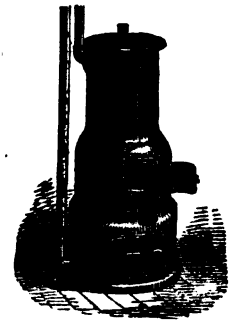

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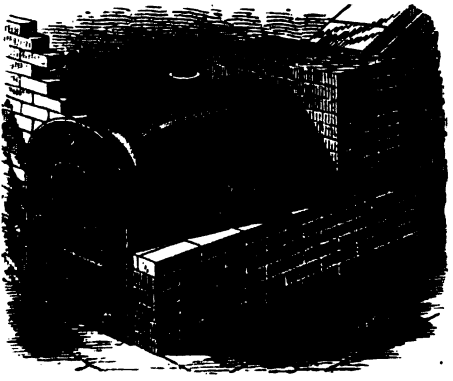

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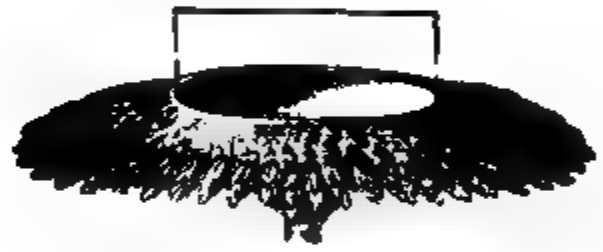

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" " " " 18 to 20 inches, 5-inch pots,	1 00	10 00	75 00
" " " " 10 to 12 " 4- "	50	5 00	40 00
" " without buds, 3 feet,	1 50	12 00	100 00
" " " " 2½ feet,	1 00	9 00	75 00
" " " " 5-inch pots, 18 inches to 2 feet,	75	6 00	50 00
" " " " 4- " 1 foot,	30	3 00	25 00
Cissus discolor, climbing, handsome foliage,	10	1 00	8 00
Clerodendron fragrans, white flowered, fragrance of the Daphne,	15	1 50	10 00
Crotons, in twelve kinds,	25	2 40	
Daphne odorata, 2-inch pots,	15	1 50	10 00
Dieffenbachia Bowmanii, Bausei and **Picta,**	50	3 60	
Dracaena, in six kinds,	50	6 00	
Euphorbia pleniissima, double,	30	3 00	
" **alba,**	30	3 00	
Eranthemum tricolor,	15	1 50	
Eucharis grandiflora,	50	6 00	
Gardenia Florida, Radicans, Fortunii, 2-inch pots, strong,		1 00	6 00
Hydrangea, Thos. Hogg, white,		1 00	5 00
" **Otaska,** pink,		1 00	6 00
Passiflora quadrangularis, foliage variegated, new,	25	1 80	
Tradescantia multicolor, new,	20	1 80	

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POT-GROWN, 3-INCH POTS, STRONG.

Perle des Jardin (The Florist's Rose),	1 20	8 00
Cornelia Cook, Marie Van Houtii, Marie Cuilliot, Marechal Niel, Bon Silene, Isabella Sprunt, and Safrano, from 3-inch pots, **strong,**	1 20	8 00

For other plants see **General Trade List** and my **Annual Illustrated Catalogue,** mailed free to all applicants.

Fine stock of **Specimen** and **Exhibition** plants always on hand. Prices on application.

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CHAS. BLACK & BRO., Fruits, Evergreens and Plants, Hightstown, N. J.	**D. W. LANGDON,** Successor to C. C. Langdon, Langdon Nurseries, Mobile, Ala.	**GEO. A. STONE,** Nurseryman, Rochester, N. Y.
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50,000 NOW READY.

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Roses, Geraniums, Fuchsias, Begonias, and other Greenhouse Stock.

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d.1 E. M. VAIL, Kewanee, Ills.

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NATURAL VIRGINIA PEACH SEED

In large or small lots. Low prices for the Quality Address,

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Foreign Grape Vines for Graperies.

We now offer the **Finest collection** of **Foreign Grapes** grown in the country. They are all **Good, Strong, Healthy, Canes,** all true to name and all in excellent condition for **shipping.** Below will be found list of varieties grown by us one and two years old

Price, 1 year old, $1.00 each. 2 years old, $2,00 each.

Black Hamburg,	**Muscat of Alexandria,**
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Millhill "	**Royal Ascott,**
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Lady Dow's Seedling,	**Buckland Sweetwater,**
Black Prince,	**White Syrean,**
Prince Albert,	**White Sweetwater,**
White Frontignac,	**Cannonball Muscat,**
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We would also call special attention to our stock of Camellias, Azalias Daphnes, Acacias and a general collection of **Winter Blooming** and **Ornamental Foliage Plants.** tap9

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A New Process for Preserving all Perishable Articles, Animal and Vegetable, from Fermentation and Putrefaction, Retaining their Odor and Flavor.

"OZONE—Purified air, active state of oxygen."—*Webster.*

This Preservative is not a liquid, pickle, or any of the old and exploded processes, but is simply and purely OZONE, as produced and applied by an entirely new process. Ozone is the antiseptic principle of every substance, and possesses the power to preserve animal and vegetable structures from decay.

There is nothing on the face of the earth liable to decay or spoil which Ozone, the new Preservative, will not preserve for all time in a perfectly fresh and palatable condition.

The value of Ozone as a natural preserver has been known to our ablest chemists for years, but, until now, no means of producing it in a practical, inexpensive, and simple manner have been discovered.

Mircroscopic observations prove that decay is due to septic matter or minute germs, that develop and feed upon animal and vegetable structures. Ozone, applied by the Prentiss method, seizes and destroys these germs at once, and thus preserves. At our offices in Cincinnati can be seen almost every article that can be thought of, preserved by this process, and every visitor is welcoms to come in, taste, smell, take away with him, and test in every way the merits of Ozone as a preservative. We will also preserve, free of charge, any article that is brought or sent prepaid to us, and return it to the sender, for him to keep and test.

FRESH MEATS, such as beef, mutton, veal, pork, poultry, game, fish, &c., preserved by this method, can be shipped to Europe, subjected to atmospheric changes and returned to this country in a state of perfect preservation.

EGGS can be treated at a cost of less than one dollar a thousand dozen, and be kept in an ordinary room six months or more thoroughly preserved; the yolk held in its normal condition, and the eggs as fresh and perfect as on the day they were treated, and will sell as strictly "choice." The advantage in preserving eggs is readily seen; there are seasons when they can be bought for less than 10 cents a dozen, and by holding them, can be sold for an advance of from one hundred to three hundred per cent. One man, with this method, can preserve 5,000 dozen a day.

FRUITS may be permitted to ripen in their native climate, and can be transported to any part of the world.

The juice expressed from fruits can be held for an indefinite period without fermentation—hence the great value of this process for producing a temperance beverage. Cider can be held perfectly sweet for any length of time.

VEGETABLES can be kept for an indefinite period in their natural condition, retaining their odor and flavor, treated in their original packages, at a small expense. All grains, flour, meal, etc., are held in their normal condition.

BUTTER, after being treated by this process, will not become rancid.

Dead human bodies, treated before decomposition sets in, can be held in a natural condition for weeks, without puncturing the skin or mutilating the body in any way. Hence the great value of Ozone to undertakers.

There is no change in the slightest particular in the appearance of any article thus preserved, and no trace of any foreign or unnatural odor or taste.

The process is so simple that a child can operate it as well and as successfully as a man. There is no expensive apparatus or machinery required,

A room filled with different articles such as eggs, meat, fish, etc., can be treated at one time, without additional trouble or expense.

☞ **In fact, there is nothing that Ozone will not preserve.** Think of every thing you can that is liable to ferment, decay, or spoil, and then remember that we guarantee Ozone will preserve it in exactly the condition you want it for any length of time. If you will remember this, it will save asking questions as to whether Ozone will preserve this or that article—**it will preserve any thing and every thing you can think of.**

There is not a township in the United States in which a live man can not make any amount of money, from $1,000 to $10,000 a year, that he pleases. We desire to get a live man interested in each county of the United States, in whose hands we can place this Preservative, and through him secure the business which every county ought to produce.

A FORTUNE

Awaits any Man who Secures Control of OZONE in any Township or County

A. C. Bowen, Marion, Ohio, has cleared $2,000 in two months. $2 for a test package was his first investment.

Woods Brothers, Lebanon, Warren County, Ohio, made $6,000 on eggs purchased in August and sold November 1st. $2 for a test package was their first investment.

F. K. Raymond, Morristown, Belmont Co., Ohio, is clearing $2,000 a month in handling and selling Ozone. $2 for a test package was his first investment.

D. F. Webber, Charlotte, Eaton Co., Mich., has cleared $1,000 a month since August. $2 for a test package was his first investment.

J. B. Gaylord, 80 La Salle St., Chicago, is preserving eggs, fruit, etc., for the commission men of Chicago, charging 1½c per dozen for eggs, and other articles in proportion. He is preserving 5,000 dozen eggs per day, and on his business is making $3,000 a month clear. $2 for a test package was his first investment.

The Cincinnati Feed Co., 498 West Seventh Street, is making $5,000 a month in handling brewers' malt, preserving and shipping it as feed to all parts of the country. Malt unpreserved sours in 24 hours. Preserved by Ozone it keeps perfectly sweet for months.

These are instances which we have asked the privilege of publishing. There are scores of others. Write to any of the above parties and get the evidence direct.

Now, to prove the absolute truth of everything we have said in this paper, **we propose to place in your hands the means of proving for yourself that we have not claimed half enough.** To any person who doubts any of our statements, and who is interested sufficiently to make the trip, we will pay all traveling and hotel expenses for a visit to Cincinnati, and fail to prove any statement that we have made.

HOW TO SECURE A FORTUNE WITH OZONE.

A test package of Ozone, containing a sufficient quantity to preserve one thousand dozen eggs, or other articles in proportion, will be sent to any applicant on receipt of $2. This package will enable the applicant to pursue any line of tests and experiment he desires, and thus satisfy himself as to the extraordinary merits of Ozone as a Preservative. After having thus satisfied himself, and had time to look the field over to determine what he wishes to do in the future—whether to sell the article to others, or to confine it to his own use, or any other line of policy which is best suited to him and to his township or county—we will enter into an arrangement with him that will make a fortune for him and give us good profits. We will give exclusive township or county privileges to the first responsible applicant who orders a test package and desires to control the business in his locality. **The man who secures control of Ozone for any special territory, will enjoy a monopoly which will surely enrich him.**

☞ See Page 11.

Don't let a day pass until you have ordered a Test Package, and if you desire to secure an exclusive privilege we assure you that delay may deprive you of it, for the applications come in to us by scores every mail—many by telegraph. "First come first served" is our rule.

If you do not care to send money in advance for the test package, we will send it C.O.D., but this will put you to the expense of charges for return of money. Our correspondence is very large; we have all we can do to attend to the shipping of orders and giving attention to our working agents. Therefore, we cannot give any attention to letters which do not order Ozone. If you think of any article that you are doubtful about Ozone preserving remember we *guarantee that it will preserve it, no matter what it is.*

REFERENCES:—We desire to call your attention to a class of references which no enterprise or firm based on any thing but the soundest business success and highest commercial merit could secure.

We refer, by permission, as to our integrity and to the value of the Prentiss Preservative, to the following gentlemen: Edward C. Boyce, Member Board of Public Works; E. O. Eshelby, City Comptroller; Amor Smith, Jr., Collector Internal Revenue; Wulsin & Worthington, Attorneys; Martin H. Harrell and B. F. Hopkins, County Commissioners; W. S. Cappeller, County Auditor; all of Cincinnati, Hamilton County, Ohio. These gentlemen are each familiar with the merits of our Preservative, and know from actual observation that we have without question.

THE MOST VALUABLE ARTICLE IN THE WORLD.

The $2 you invest in a test package will surely lead you to secure a township or county, and then your way is absolutely clear to make from $2,000 to $10,000 a year.

Give your full address in every letter, and send your letter to

PRENTISS PRESERVING CO. (Limited),

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5,000 Cool Orchids for the People--Popularize the Beautiful.

Our Spring Importations of Mexican, Brazilian, Central and South American Orchids have arrived, from which we offer to send good plants, **as imported, not established,** at **50c.** each; **$6.00** per dozen. The small varieties can be sent by mail, but most of these only by express. We cannot guarantee these newly imported plants, but there is little doubt regarding their identity. They include among others the following: **Acinetas (or Peristerias) Barkerii and Humboldtii; Aspasia Lodigesii, Arpophyllums giganteum and spicatum; Brassia verrucosa; Cattleyas citrina, intermedia, mossiæ** and others from Brazil; **Chysis lævis; Cyrtochilum maculatum; Epidendrums aurantiacum, myrianthum, oderatissimum, oncidioides, vitellium majus** and others unnamed from Brazil; **Laelias albida, anceps, autumnalis, majalis; Lycastes aromatica and Deppei; Masdevallia maculata; Mormodes citrinum; Odontoglossums bictoniense, Cervantesii** (true), **citrosmum, cordatum** (true), **Insleayii, maculatum, nebulosum, Oerstedii** (new), **Reichenheimii, Rossii majus, Uro-Skinneri; Oncidiums Barkerii (or tigrinum), bicallosum, incurvum, multiflorum (or altissimum), ornithorynchum, roseum** and others unnamed from Brazil; **Stanhopea oculata; Trichopilia tortilis.**

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Established plants of those heretofore advertised in the GARDENER'S MONTHLY, at $1.00 to $5.00 each, as to size and variety; $10 00 and $25.00 per dozen.

Please order newly imported plants promptly, before they have made too much growth.

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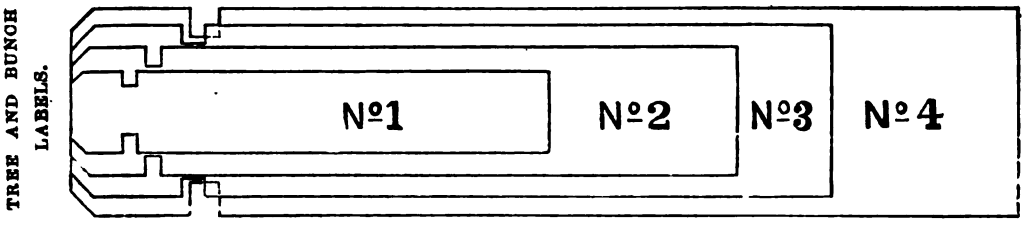

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It was started with the object of supplying the Congregational churches with an organ which should be a vigorous advocate of anti-slavery and other reforms, and continued so until the year 1863, when it became undenominational—the proprietor believing that it could thus accomplish more for religion and reform than if it were nominally connected with any religious denomination.

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It is the largest of any of the religious newspapers. It consists of 32 pages (the size of *Harper's Weekly*) neatly cut and pasted, and printed from clear type, and, being stereotyped every week, every issue is really printed with new type, on good paper, and mechanically it is unexcelled.

It probably pays two or three times more each week for contributed articles and for editorial services than any other weekly newspaper; in fact, the question of expense does not deter it from securing the very best talent, native or foreign, to be obtained.

It publishes more religious discussions than the religious reviews, more poetry and stories than the popular monthlies, and gives more information than an annual cyclopedia. The long cable despatches recently published from the great Methodist Council in London is a good illustration of what THE INDEPENDENT is constantly doing.

There is no question of prominence in religion, politics, science, education, finance, or any other department of human knowledge, which THE INDEPENDENT does not discuss. It has regular departments devoted to Biblical Research, Missions, Religious Intelligence, Book Reviews and Literary News, the Sunday-School, Music, Hymn Notes, Pebbles, Stories, Puzzles, Education, Science, Sanitary questions, Fine Arts, Ministerial Register, Personalities, News of the Week, Financial and Commercial matters, Weekly Market Reports, Dry Goods Quotations, Cattle Market, Prices Current, Flowers, Farming, and Insurance. In its Religious Department it gives news and statistics of all denominations of Christians, everywhere. In fulness, accuracy, and comprehensiveness this department is unequaled. Several pages of stories and poems adapted to Old and Young are given every week, with a column of Puzzles.

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THE INDEPENDENT has very large well-appointed press-rooms, where it prints not only its own paper, but also nine or ten or twelve others.

THE INDEPENDENT employs regularly in its office editorial, composing, and press-rooms about eighty persons.

Subscribers and friends of the paper are cordially invited to visit the office or press-rooms.

Although the paper is larger than any of the other religious papers, the subscription price is the same as lower.

Although primarily THE INDEPENDENT is a religious newspaper, it is largely a literary and political newspaper as well. In fact, no person, whether caring particularly for a religious newspaper or not can ignore THE INDEPENDENT, as it contains a mass of information which every well-informed person should know and which cannot be obtained elsewhere.

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For 6 months, $1.50; for three months	0.75
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Illustrated Plant and Seed-lists free on application. All orders carefully packed and regularly mailed to all parts of the United States.

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[To Messrs. Froebel & Co., Zurich, (Switzerland).] tda

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nd all other Bedding Plants in large quantities, also Dracænas, alms and Hothouse and Greenhouse plants, the largest assortment America.

Camellias and Azaleas a specialty.

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J. C. McCURDY & CO., Philadelphia, Pa.

Special Offer to the Trade.

	Per doz.	Per 100.
Cyclamen Persicum,	$2.00	$15.00
Dracæna terminalis, 4-in. pots	3.00	16.00
" " 5-in. "	5.00	40.00
Ferns, 12 choice sorts,	1.25	10.00
Geranium, Apple scented,	.75	6.00
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An Illustrated Quarterly Journal, devoted to the

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ISOTOMA LONGIFLORA

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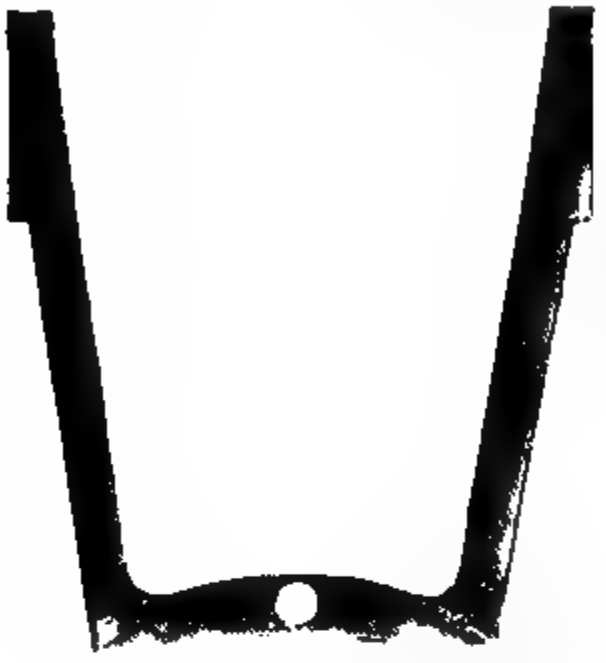

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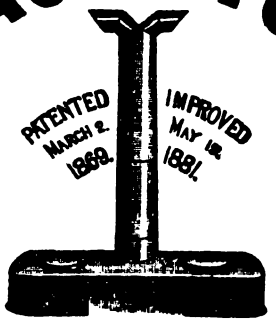

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